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and The AIRCRAFT ENGINEER

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The Outlook

The Airways Corporation

THE new British Overseas Airways Corporation starts life with a severe handicap. It will have only the equipment handed over to it by the two companies, Imperial Airways and British Airways, which were formally merged on April 1 to form the Corporation. A slight addition of some De Havilland Flamingos, believed to be small in number, will be made, but these are only replacements for obsolescent DH 86s which have been doing their jobs for a considerable time. Not for nearly so long, however, as the Handley Page Heracles class and the Armstrong Whitworth Atalantas which are still in service.

So it is not to be wondered at that the statements (given on page 305) of the chairman of the Airways Corporation, Mr. Clive Pearson, gave no promises of replacement of the services which were summarily stopped at the declaration of war, but consisted only of a series of "hopes," hope that the North Atlantic service—but for mail only—may be resumed this summer, hope that a service to Lisbon—feeder to Pan-American's transatlantic—may be established soon, hope for a service to the Balkans. But no hope for a South Atlantic route or a North Atlantic passenger service.

These hopes do not take the place of the definite promises of resumed and new services which we wished to hear. Britain's prestige on the air routes of the world cannot live on hopes, and the closer we examine Mr. Pearson's statements the more do we see that they contain nothing to lighten the prevailing gloom which has descended on all British civil aviation since the war started.

The future of the overseas air transport services depends on a forlorn hope. It depends on the ability of Mr. Pearson and his board to persuade Sir Kingsley Wood to make aircraft available to them. And we are all too familiar with Sir Kingsley's statement, "First things must come first," which would be more readily accepted if we thought that second things would come second. But the story of the butler explaining to the newly hired gardener his relative place in the household springs to mind. "First there is me," said the butler, "then for a long, long time there's nothing at all . . . then there's you."

Unless new aircraft are supplied, and no matter how active the board of the Airways Corporation may be, the overseas services are doomed to a poverty-stricken existence with nine-year-old equipment.

The Financial Arrangements

ON the finances of the Airways Corporation the chairman's statements disclose—or fail to disclose would, perhaps, be more accurate—a situation which gives one furiously to think. The shareholders of Imperial Airways and British Airways have, virtually, no right to convert to stock in the new Corporation.

We thought this right was secured to them by the wording of their contracts, which are embodied in the British Overseas Airways Act, 1939, for the acquisition of their shares. But they have no such right unless a public offer of the Corporation stock is made. Mr. Pearson tells us that no public offer is to be made at present, as it was "considered impracticable in wartime." What has wartime to do with it? Are not new companies and £300,000,000 war loans floated in wartime?

The Corporation stock is to be—or has been?—disposed of privately, to whom has not been disclosed. No indication was given of the possibility of the public being allowed to invest, nor even of who would decide whether the public should be allowed this right, the right of investment in their own national oversea air service. Mr. Pearson would not disclose the amount of capital of the Corporation.

The financial arrangements are thus shrouded in

obscurity, and unless some public offer is made, which seems unlikely once investing interests get their hands on to guaranteed 4 per cent. stock, the original shareholders are to be dispossessed. The day of the small investor in air transport is approaching its end, and we voice an emphatic protest.

Mr. Churchill's Broadcast

BY this time even the most enthusiastic believer in the power of the bomber must have come to realise that air action by itself is not going to bring about a decision in this war. Intentions and opinions may be judged by actions, and arguing in that way one sees that on neither side has the High Command any belief in the efficacy of independent air action.

Therefore, although Mr. Churchill's broadcast on Saturday evening made only casual references to air action, his outline of policy is of equal interest to students of naval, air and army policy. Of all the members of the British War Cabinet, the First Lord is the only man who has made a deep study of higher strategy.

Allied Policy

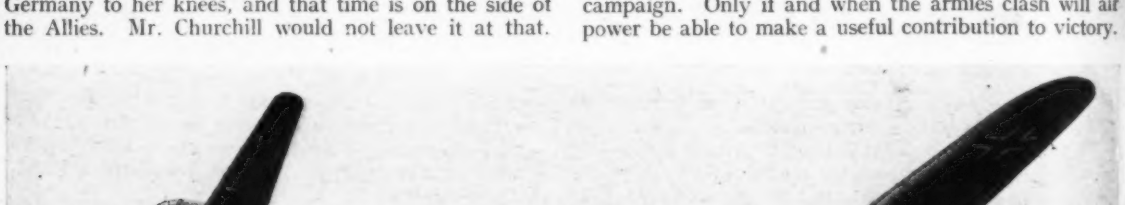
IN his broadcast Mr. Churchill, without doubt speaking with the authority of the Cabinet, laid down a principle of Allied strategy which must have surprised many of his listeners. "We have no wish to broaden the area of conflict," he remarked, and then added, "It is no part of our policy to seek a war with Russia." From this one would presume the Allied opinion to be that the blockade will sooner or later bring Germany to her knees, and that time is on the side of the Allies. Mr. Churchill would not leave it at that. Earlier in his speech he had warned his hearers that though time had hitherto been on the side of the Allies, time was a changeable ally which may be with you in one period and against you in another.

From those words one can only assume that the Cabinet now considers time to favour Germany. Many authoritative writers have given it as their opinion that Germany will never run short of plain, nourishing food, and that so long as she has not to use up her oil and other materials in strenuous fighting she can continue at war for a long time.

German Policy

THE German need for conserving her war supplies, and particularly her oil, may well be the chief reason for the small scale of her air efforts to date. She seldom sends out more than about twenty aircraft a day to raid the shipping off the British coasts, and her attacks on the Forth and on Scapa Flow have been on an equally modest scale. Her reconnaissance machines seldom run the risk of penetrating inland, but usually are content to photograph an East Coast town and then hurry home. As the Germans are a brave race, this caution is less likely to be due to timidity than to a deliberate plan of not risking machines (probably the smallest consideration) and crews, and of using petrol as sparingly as possible.

Some critics say that if we bombed Germany we should force her into vigorous retaliation; but so long as the armies remained quiescent there is no reasonable chance that either side could get a decision by an isolated air campaign. Only if and when the armies clash will air power be able to make a useful contribution to victory.



A MESSERSCHMITT BOMBER: In *Flight* of January 18 this year it was stated that the Messerschmitt Me 110 multi-purpose machine could probably be used for bombing, though if employed for dive-bombing it would be advisable to fit air brakes. Above is an exclusive *Flight* drawing of a new Messerschmitt bomber now in service in the *Luftwaffe*. The type has already been active over the North Sea. It will be seen that except for the front portion of the fuselage it resembles the fighter version, and that the nose gun-mounting is similar to that on the Heinkel He 111K.

WAR in the AIR

R.A.F. Bag Five Messerschmitts in One Day

A squadron of Gloster Gladiator biplane fighters (Bristol Mercury IX) on the Western Front. Although not so fast as the Hurricanes, these outstandingly manœuvrable machines will be excellent for tackling such types as the Henschel Hs 126 army co-operation machine and the Henschel Hs 123 and Junkers Ju 87 dive-bombers.

SPRING is here and on fine days a certain air liveliness is to be expected on the Western Front. For their neutral merchant ship bombing the Germans prefer bad weather as it makes the task of finding them more difficult for our fighters.

Wednesday last, March 28, marked a day of considerable air activity over the Maginot Line and Western Germany. British fighters accounted for no fewer than five Messerschmitt Me 109s, and it is thought that a Dornier and another Messerschmitt were also shot down, but these were not actually seen to crash and so, of course, are not claimed. One Hurricane was shot down but the pilot escaped by parachute.

These results were from six separate encounters of which three had decisive results. A flight lieutenant, on patrol at about 15,000 feet, saw four Dorniers in Vic formation, with three Messerschmitt Me 110s looking after them about 2,000 feet higher. The Hurricane immediately attacked one of the Dorniers, giving it severe punishment. When last seen oil was streaming from the Dornier, and it is doubtful whether it reached its own aerodrome.

Another air battle near the frontier of Luxemburg, between a patrol of the R.A.F. and nine Messerschmitt Me 109s. Battle was joined at 25,000 feet. The patrol leader took on a pair of Germans and made a bold attack; one Me 109 falling to his first burst. Turning his attention to the enemy's companion, the eight Brownings rattled again and in a cloud of smoke the second German went down out of control. The British pilot did not, however, have it all his own way, for a third Messerschmitt attacked him in turn and, having shot his cockpit cover away with a shell gun, finally set the Hurricane afire. Slightly wounded and somewhat shell-shocked he went down in a spin for some while before he was able to get the nose up and escape by parachute. He landed in No Man's Land, about half a mile from the German lines, and was rescued by the French Army. A second member of this patrol also got a Messerschmitt, and a third is possible.

Three more Hurricanes on patrol the same day were bold enough to take on no fewer than twelve Me 109s which were in close formation. Two of the British machines were too low to join in, but the higher one immediately pressed home the attack. Separating two machines from the remainder of the formation, a scrap ensued for a while until one of the Germans went down in a spin. Although he had been shot about somewhat, the British pilot nevertheless turned to the other enemy machine and proceeded to chase it back to his (the enemy's) aerodrome, where a dog-fight took place. Finally the German made the mistake of diving and zooming up in front of the Hurricane, making almost a perfect target; a burst of fire and the Messerschmitt went down in flames.

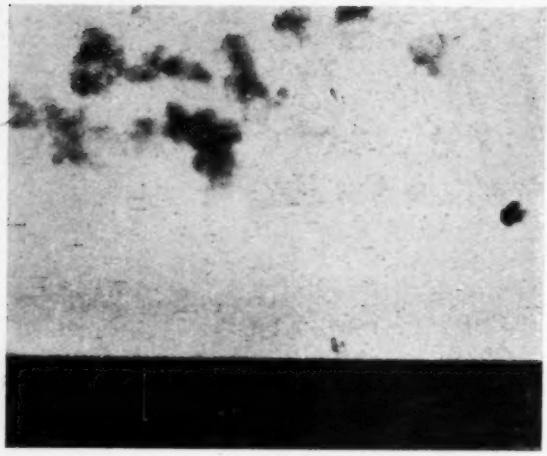
Coastal Command Success

DURING the period under review extensive reconnaissance flights have been carried out over enemy territory and, altogether, three of our machines have failed to return. An enemy aircraft was shot down off the N.E. coast of Scotland on March 27, and another on Sunday last.

Coastal Command bagged a German patrol ship in the North Sea, also on March 27.

The attack was carried out in face of intense anti-aircraft fire. The British pilots took advantage of cloud cover to stalk their quarry, and then circled round to choose the best position from which to strike.

Four ships were seen close together. Selecting one as a target, the British pilots made a dive bombing attack with accurate results. The rear gunner of one of the aircraft saw a salvo of bombs burst directly on the deck of one of the ships. There was a big explosion, but before the smoke had died down, the British aircraft flew into



WAR IN T

cloud to escape from a storm of retaliatory fire, and when they emerged the crew saw only three ships.

One of the two pilots who took part said on his return that the enemy fire was heavy. "We seemed to have every kind of anti-aircraft device bursting around us," he said. "There were flaming onions, bursting with orange and yellow explosions, fierce shell fire with black bursts and red streaks from machine gun tracer bullets.

"My gunner told me that we had scored direct hits. After flying about behind the cloud, I decided to go back and have a look at the result. Where the ship had been there was only a mass of foaming, frothy water."

Our aircraft returned to their base. While on the subject of ship bombing it is interesting to note how right *Flight's* prophecy was that the air would not be decisive against the Navy.

In more than six months of war the achievements of the

SEE HOW THEY CRASH

(Read from top to bottom.)

We do not normally publish pictures of crashed aircraft, but it is felt that the views on these pages have a certain technical interest and, moreover, constitute a reply to the widely circulated views of wrecked Wellingtons and Blenheims.

A Dornier Do 18 flying boat brought down by fire from British warships.

A Heinkel He 111K brought down by French Curtiss fighters in the Meuse.

The grim end of a Do 17 reconnaissance machine after being attacked by French fighters.

A Do 215 which completed its military career in less tragic fashion.

(CONTINUED)

German Air Force against both warships and merchant ships must have been most disappointing to the enemy. In these six months warships have been attacked both at sea and in their bases, large convoys of merchant ships have been attacked, as have also a great many fishing vessels and merchant vessels proceeding independently. Even lightships and lightship tenders have been attacked. Yet the results achieved by the enemy have been surprisingly small.

Consider, in the first place, the German air attacks on British warships. These have been remarkable for the fantastic claims put forward by Germany, every one of which has subsequently been proved to have been entirely without foundation. Shorn of the imaginative claims of the German Propaganda Ministry, the total damage inflicted upon British warships by air attack, is as follows:—*H.M.S. Mohawk*, a destroyer, damaged by splinters from

(*Read from top to bottom.*)

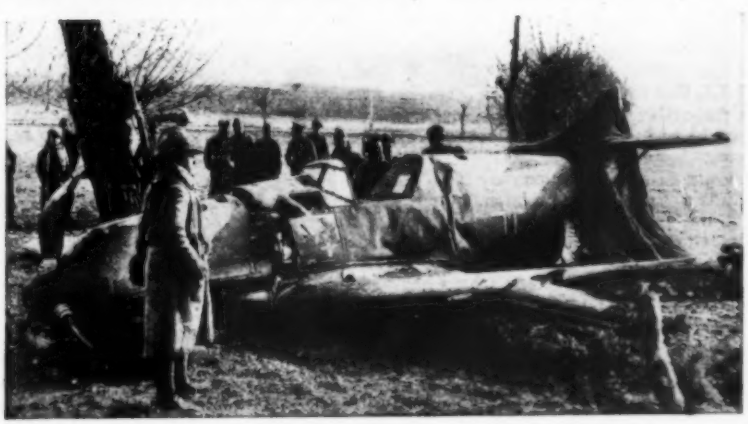
The R.A.F. salvaged some interesting equipment from this crashed Do 17 reconnaissance machine.

A Heinkel He 111K meets a terrible end after trying to escape from French fighters.

Apart from the airscrews and the tail-end of the fuselage there is little recognisable structure in this He 111K bomber.

A Messerschmitt Me 109 fighter brought down behind the French lines.

Looking like some great flat fish, part of a He 115 float-plane is washed up on the east coast (*centre below*).



"Flight" photograph.

IN THE NEWS. It is now confirmed that a considerable proportion of aircraft used in the night attack on Sylt were Handley Page Hampdens.

a bomb which fell in the water close alongside during the raid on the Firth of Forth on October 16, 1939. *One Cruiser*, very slight superficial damage caused by a bomb which hit, but which glanced off without exploding. This was in the same raid. *H.M.S. Iron Duke*, a one-time battleship, demilitarised in 1930, used as an accommodation ship, damaged by a bomb which fell close alongside in the raid on Scapa Flow, on October 19, 1939. *One Warship* (not a capital ship) slightly damaged by a bomb hit during the raid on Scapa Flow on March 16, 1940.

German Successes

ALL German air attacks on warships at sea have proved abortive. There have also been several German air attacks upon convoys of merchant vessels escorted by warships. Here the enemy has met with little more success. A few merchant ships in convoy have received damage at the hands of the German airmen, but, up to the time of writing, not a single merchant ship in convoy has been sunk by air attack. Nor has any convoy escort warship suffered damage from air attack.

The only form of attack which has yielded the slightest success to the German Air Force has been the attack on defenceless merchant ships sailing independently, fishing vessels and lightships and lightship tenders. It has, in fact, been most noticeable that the German airmen appear to avoid attacking targets capable of self-defence and prefer to seek their prey among craft incapable of hitting back. Even so, the losses of ships due to air attack has been exceedingly small in proportion to the effort expended by the enemy. The losses caused by air attacks have been made up entirely of fishing vessels and small defenceless coasting vessels steaming unescorted.

The murderous attacks delivered by German aircraft have led to the majority of ships and fishing vessels being equipped with defensive anti-aircraft armament. This has had the immediate effect of reducing the proportion of even partially successful attacks by German aircraft, which have shown a marked tendency to break off the attack and make good their escape as soon as retaliatory fire is opened.

Dominion pilots form a large percentage of the personnel of the Royal Air Force to-day. Their response to the call has been amazing and in every mess the different Dominion dialects are to be heard.

New Zealanders Over Germany

IN addition to those from the Dominions who are serving with the R.A.F. it must not be forgotten that actual Dominion units are now serving over here and in the Middle East. We recorded a short while ago the arrival in England of the first army-co-operation of the Royal Canadian Air Force. Now it is New Zealand's turn. Aircraft of the New Zealand Squadron in the Bomber Command carried out their first reconnaissance over enemy territory on the night of March 27. Three of them were engaged with other aircraft in carrying out a reconnaissance over N.W. Germany. All three returned safely.

EXIT CIVIL AVIATION?

Financial Interests Concerned : The People in Control : Aircraft Export Difficulties

By "McANGUISH," A.F.R.Ae.S.

We publish to-day the remaining instalment of this article dealing with the present deplorable condition into which civil aviation has been forced. The first part of it appeared on page 260 of our issue of March 21. Our correspondent takes a very pessimistic view of the state of civil aviation, and strongly criticises the framework of the organisation behind the overseas services. There may be others who do not agree with opinions expressed in his article, and if there is a silver lining to the dark cloud we are willing to reflect it by inviting contributions on this subject. While it may be impossible to publish all the letters received, those selected for publication will be as representative as possible.—ED.

On the Track

THE Hillman's Airways share list showed that the capital was divided among over 1,400 holders. The name of Mr. Gerard Leo d'Erlanger is again among the directors. British Continental Airways also has its capital distributed widely among 56 small shareholders.

Then I hied me to Parliament Street. No. 47 proved to be a worthy office building with only one plate outside, one of those solid plates built to outlast the centuries. It said simply, "S. Pearson and Son, Ltd., Whitehall Securities Corporation, Ltd." Back to Bush House again where Whitehall Securities was found to have an issued share capital of £4,000,000 in 400,000 shares of £10. Shareholders include the Hon. Clive Pearson and Viscount Cowdray jointly, 200,000; the Hon. Clive Pearson, 46,633; W. J. H. Macdonald, 153,057; J. L. Walsh, 106; and W. J. H. Hunter, 101. The Hon. Clive Pearson heads the directors as chairman and has with him on the board all five shareholders.

Erlangers, Ltd., also is on a sound financial footing, its balance sheet for December 31, 1939, showing £6,574,718 on the asset side while its issued share capital is given as £1,600,000. Only one name on the board of directors had been noticed before and that was Mr. W. C. Tomlinson. One of the assets is share capital in our almost forgotten Moorgate Nominees, one of the big shareholders in British Airways.

Dazed by strings of naughts I sent myself to sleep that night by reading *Who's Who*. It said that the Hon. Clive Pearson, son of Viscount Cowdray, was chairman of directors of S. Pearson and Son, Ltd., and a director of the Southern Railway, in addition to the other directorates already enumerated.

Shipping Interest

Mr. Irvine Geddes proved to be a director of Imperial Airways and chairman of directors of the shipping firm of Anderson, Green and Co., managers of the Orient Steam Navigation, Ltd.

Mr. Harold G. Brown is stated to be a director of the Debenture Corporation, Ltd., the Trustees Corporation, Ltd., and other companies.

The Hon. Leslie Runciman is a director of three companies at least, the Runciman Shipping Co., Ltd., Lloyds Bank, Ltd., and the L.N.E.R. A very representative group, including shipping, banking and railway interests.

This "interlocking" of directorates between an airline and other transport companies is something which is not allowed in America except with the specific permission of the Authority itself, given only after a detailed examination. No doubt there are good reasons for prohibiting it. The Civil Aeronautics Act of 1938 deals specifically with "interlocking directorates" and prohibits any air carrier having an officer, director, member or controlling stockholder who is a common carrier or is engaged in any phase of aeronautics. It also prohibits all officers of air carriers from being directors or holding controlling interests in common carriers and all aeronautical enterprises. In fact, it prevents all interlocking relationships between air transport, aircraft manufacture and all other forms of transport. It also goes further and prohibits acquisition of control or merging between two or more air carriers and between an air carrier and any other common carrier, without specific permission.

They are determined in America that "Civil Aviation shall fly by itself," if "by itself" means, not "without subsidy," but "unaccompanied by the (probably) strangling control of the railways and shipping interests." In this country there is no law similar to the clauses of the Civil Aeronautics Act relating to interlocking directorates.

Interlocking Directorates

I tried drawing a diagram of the interlocking directorates I had found, but it became too complicated to complete. It all looked too much like a spider's web, anyway, and I dreamt that night that the Rapides and DH 86s of the independent operators had flown into it and were buzzing futilely, trying to get out, but all to no purpose. The roar of an Empire flying boat, as it, too, became entangled in the web, woke me.

The man in the street has a hazy idea that the Government is "taking over" Imperial Airways and British Airways; that is, that the British Overseas Airways Corporation is going to be a State-owned air transport service. Such is far from the case, for the capital of the Corporation will all be private and this makes it a *privately owned but State-guaranteed monopoly* of the overseas services—and perhaps of the internal services, too, if events continue on their present course. Press reports of March 29 now reveal that the original shareholders of Imperial and British Airways will no longer own the capital. They are to be bought out without any option by financial interests who remain undisclosed. One wonders who they are.

This thoroughly untidy arrangement has all the disadvantages of capitalism and socialism and the advantages of neither. A monopoly appears to be the most efficient way in which to organise the oversea services at the present time, and it likewise appears to be the very worst thing for the internal airlines. So let us have the internal routes run by the independent operators using private capital, and let the oversea services be a monopoly by all means, but let it be a State-owned one, so that any losses or gains accrue to the State as a whole. Let it not be this arrangement whereby private capital is invested in the monopoly with dividends guaranteed by the State, which must foot the bill for any deficit,

however large, incurred by the management, which is a body of men who have many other financial and transport interests.

Export of Civil Aircraft

Turning now to the third aspect of the civil aviation picture. *What is being done about the export of civil aircraft?*

Much has been heard of the necessity for exporting in order to pay for our war imports, and Mr. Chamberlain has promised "a very considerable concerted drive" for export trade, which is "on our doorstep asking for goods that we had difficulty in supplying." "Difficulty in supplying" is certainly an accurate description of the situation with regard to civil aircraft. Anyone wanting to buy a civil aeroplane from England will experience great difficulty in being supplied—but in a slightly different way from that inferred by the Prime Minister's statement. *There is no export of civil aircraft from Great Britain.*

At least two companies are very willing to export as soon as they are allowed to and can obtain the materials of construction. They are De Havillands and General Aircraft, Limited. No doubt there are also numerous other companies wishing to do so, companies such as Percival Aircraft and Phillips and Powis, to name only two, who were exporting civil types before the war. These were of the smaller type, Magisters and Gulls, and so is the General Aircraft Cygnet. But the De Havilland type, the Flamingo, was built for export as well as for home consumption, and is an airliner which stands favourable comparison with any of the new airline types in the world. Powered with two of the new Bristol sleeve-valve Perseus XVI engines driving Hydromatic feathering airscrews, it has all the equipment and comfort to recommend itself to airline operators and passengers the world over.

Unless we export it, there will soon be no British aircraft left on any airline in the world. Even our own Dominion, Australia, to every true Britisher's regret, has practically no British air transport craft. Douglases and Lockheeds are reported to be doing all the airline work there. And in Canada the new and important Trans-Canada Airlines is completely equipped with a fleet of fifteen Lockheed 14s. America overwhelms us in the car export trade, and even sells quite a number here in England. She will very shortly overwhelm us also in the civil aircraft market—if she has not already done so. We have now made her a present of the South African market, and, unless we export, we will make her a present of most other world markets.

The Cygnet, too, can aid materially in keeping Britain's "tail up" in the market for private-owner and flying club types. This all-metal two-seater is most advanced in design, having the new nosewheel type of undercarriage which makes taxying, take-off and landing immeasurably easier and safer. People who are not pilots and cannot fly have been given the controls, and with only verbal instruction have taken-off, flown round and landed the machine in perfect safety at the first attempt. This is an aeroplane which private owners and aero clubs have been waiting for. It simplifies flying. Export it, and Britain's name can be kept alive on the club aerodromes of the world. But with no export of any aero club type, American machines, which are undeniably very good, will be bought, and once let them get into that market and we shall have considerable difficulty in recovering it.

There are, of course, several other aero club types suitable for export. The Cygnet was enlarged upon as it is the latest and most enterprising design in this field. But every one of the manufacturers of two- and three-seaters in this country can turn out a suitable type if given the chance.

Less Than One per Cent.

It is for the Export Council to see that they are given their chance. Sir Andrew Duncan, as President of the Board of Trade, presides also over the Export Council, and it is to Sir Andrew and his Council that a respectful appeal is made—that he devote some thought to this question of the export of civil aircraft and decide upon the merit of the points put forward in this article. If he agrees upon their soundness, then perhaps he will suggest to the Air Ministry that the necessary materials and manufacturing facilities be made available for the manufacture of these aircraft. No design work is needed. That has already been done and the types are in existence.

The number could be strictly limited—it would not be necessary to supply every buyer who asked to be supplied. Set the number at, say, 50 Flamingos per year and 100 of the aero-club type, be they Cygnets or Gulls or any others.

What does this mean as a proportion of the hypothetical total production of 10,000 aircraft per year? The aero-club type is equal to about one-fifth of a military type in its cost, material and labour. So the 150 aircraft to be exported per year is equal to about 70 military craft. As a proportion of the 10,000 per year, it is *seven-tenths of one per cent.* In figures again, 0.7 per cent., a minute amount.

Adding this to the 0.3 per cent. suggested to keep the airlines going, we have a total of only *one per cent.* And all this is based on the assumption that total production is 10,000 per year. It is probably greater, which would make the percentage suggested for diversion to the two civil purposes even less than one per cent.

That is all that is suggested, Sir Andrew and Sir Kingsley. Is it not worth while doing? Just to set aside one per cent. of our aircraft manufacturing resources for civil purposes and so relieve that slight stiffness—which we hope is not the onset of paralysis—in "the fourth arm."

Flying Over Eire

NOTICE to Airmen, Emergency Series No. 93, details the restrictions relating to flying over Eire. Flight may only occur between sunrise and sunset and at an altitude at which the aeroplane is clearly visible from the ground and not exceeding 1,500ft. Prohibited areas at Dublin, Cork, Bear Island, Cloonlara, Lough Swilly and Curragh are defined, as well as Customs arrangements and obligatory air routes.

Boats for American Export Airlines

RAISING its bid for a place on the air routes over the Atlantic higher still, American Export Airlines announce the placing of an order for three of the new Vought-Sikorsky flying boats. Known as the VS 44A, and powered with four Pratt and Whitney Twin Wasps driving Hamilton Hydromatic airscrews, this boat is the latest design.

U.S. Air Mail

ON the air mail routes of the United States a total of over 57,000,000 aeroplane-miles were flown during the fiscal year 1939. This exceeds the previous year's total by 12.5 per cent. Internal services accounted for 52,193,000, and those to foreign countries for 5,357,000. The route-mileage of the domestic system is 37,049 miles and that of the foreign system, 31,479. Using these figures it is simple to calculate that the domestic system has 3.86 trips made over it every day (taking the year as 365 days), in other words, almost two return trips are made over every route every day. The same calculation on the foreign routes gives 0.47 trips per day, which is more than 1½ return trips per week. The air mail routes, with the addition of an almost negligible proportion of non-mail-carrying routes, make up the whole airline network of the United States.

THE AIRWAYS CORPORATION

The Chairman of the New Concern Explains the Recent Merger : Future Plans are Mostly in the Nature of Pious Hopes

THE HON. CLIVE PEARSON, the recently appointed chairman of the British Overseas Airways Corporation, made announcements on March 28 regarding the future plans of the Corporation. With the Hon. W. L. Runciman, the director-general, Mr. Pearson met the Press and gave a detailed talk on what is to the public a vital subject, the overseas air transport services.

He explained that on April 1 the British Overseas Airways Corporation would acquire the undertakings of Imperial Airways, Limited, and British Airways, Limited, by paying off in cash the shareholders of those two companies. (Reference to the British Overseas Airways Act, 1939, indicates that the sums involved are £2,659,085 for Imperial Airways and £573,500 for British Airways.) Shareholders in those two companies will not have any opportunity of converting into Corporation stock, but must accept cash when they relinquish their shares in the liquidation.

An "Act of Courtesy"

The Act previously referred to states that: "The Vendor Company shall be entitled to have allotted to it or as it may direct on the first offer of the Corporation's Stock to the public such an amount of the Corporation's Stock as the Vendor Company may apply for . . ." But as Mr. Pearson pointed out, the vendor companies cannot convert to Corporation stock as no public offer of the stock is being made. It was considered impracticable, owing to the war, he said, to make a public offer, and all the stock would be disposed of privately. He did not, however, disclose to whom. He considered that the rights given the two companies' shareholders in the clause were more of a "sentimental right" and "an act of courtesy" than "of any money value." Even were they allowed to convert, the holding of stock would not confer on them any voting power or control of the Corporation's activities, which is entirely in the hands of the five members of the Corporation board.

When asked if any means would be taken to ensure that this right of the shareholders to convert would be preserved if, in the future, any public offer of Corporation stock were made, Mr. Pearson said that he proposed to address shareholders and ask them if it is their wish that a register of their names be kept for use on such an occasion. There will be no public offer of Corporation stock at present, he stated. No indication was given as to who would decide on the question of making any such offer in the future.

Undisclosed Interests

The undisclosed private financial interests to whom the stock is to be sold will provide the funds out of which the Imperial Airways and British Airways shareholders will be bought out (but these interests, of course, will not exert any control over the Corporation). The controlling board are appointed by the Secretary of State for Air and are responsible to him. Imperial Airways held interests, in some cases controlling, in others minority, in the companies operating the Dominion sections of the Empire routes, and the Airways Corporation would, of course, take these over. The actual capital of the Corporation was a figure which he was unable to make available. However, there would not be much opportunity to spend a lot of capital on new equipment.

The actual liquidation was expected to be completed very soon. The Act requires that on the appointed day, April 1, the money shall be paid to the two companies, after which it would be distributed to the shareholders.

Services and Equipment

In a general statement on the aims of the Airways Corporation, Mr. Pearson touched on the history of the two companies and said that, though there were mistakes in the past which called for criticism, there was much to be proud of, and he had no intention of dwelling on these past errors. He considered that the fundamental error was in the lack of vision displayed by the Government about ten years ago. But he believed that the present Government regards the Airways Corporation seriously and will give freedom to its board. The board would keep in constant touch with the Secretary of State, the Under-Secretary of State and the Permanent Under-Secretary, and hoped to achieve results by keeping its case well before them.

But for the war, the formal merger of the two companies would have been already accomplished, and the Corporation headquarters would have been in Airways House instead of a West Country hotel. It would be operating the Continental services to Brussels, Amsterdam, Frankfurt, Budapest, Berlin and Warsaw, which were operated until a few days before the war. It would now be planning to carry passengers across the North Atlantic this year. On this question Mr. Pearson repeated Sir Kingsley Wood's statement that the resumption depends on the inexorable needs of military aviation, but that he (Mr. Pearson) believes that the Cabinet desires to see this service established. Mr. W. L. Runciman added that he thought it unlikely that there would be any regular passenger service on the North Atlantic this year. On the question of additional equipment, he said that production was completely controlled and the Corporation could only get what it was allowed to have. The encouraging announcement was, however, made that an undisclosed number of Flamingos would be added to the fleet to replace DH 86s on some of the routes.

Vague Hopes

It was hoped that a service to Lisbon to join with Pan American would be established, and it was expected that negotiations with the Spanish Government would be concluded successfully in the near future. It was hoped that this would be additional to the North Atlantic service, but it all depended on the military situation. The board was well aware of the value of the export trade and of the important part played in this by fast communication and would use this point in pressing its claim for more aircraft. It regarded the present remaining Empire services as of vital importance but put the projected South Atlantic service "well down the list." A Balkan service is also hoped for.

The question of new equipment is being kept in mind constantly so that if and when the opportunity occurs to obtain it, the order will be able to be placed at once. But with present production so closely controlled by military needs, the Corporation would have to do its best to obtain more equipment by "wheedling."

THE R.A.F. GOES GLIDING

Enthusiasm at Dunstable During Easter Camp

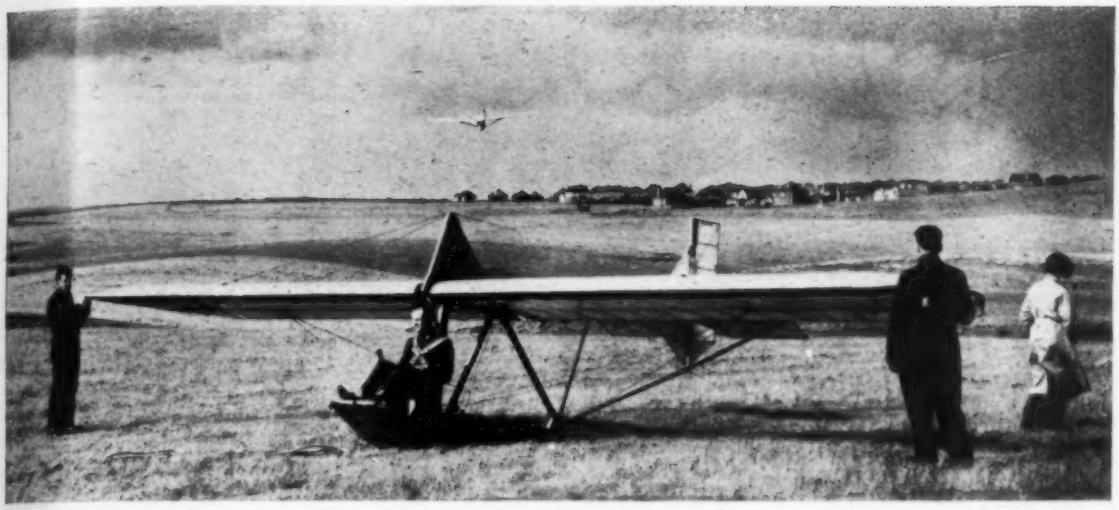
Roll out the barrel, Dunstable version. R.A.F. men help to lay out the starting cable.

THE LONDON GLIDING CLUB sprang into life during the Easter holiday, when twenty-five R.A.F. pilots from an Initial Training School camped in the former Air Defence Cadets' quarters and spent four days learning what it is like to fly without an engine. They had been selected from a much larger number of volunteers, and all had given up their Easter leave to take a busman's holiday, or, to be true to the metaphor, they were prospective busmen, mostly former car drivers, now without buses and forbidden to drive anything else, who had decided on a little push-biking to prevent their road sense becoming atrophied.

Training was by solo hops on primary gliders and dual-control soaring instruction on a Falcon III two-seater. Luckily, the wind blew on to the hill most of the time, though at an angle; but there was enough lift to give the visitors a taste of real soaring and show them that there is more in this motorless flying business than meets the eye. They were still more surprised when club members began to show what could be done in thermals and cloud lift. Privately owned sailplanes soon rolled up from neighbouring barns where they had been sheltering "for the duration," and Philip Wills had not been in his Minimoa half an hour before he was away up to the 2,000ft. limit imposed by the Fighter Command, and sorely tempted to go beyond. In spite of a surfeit of ferry piloting, Mr.

More advanced. Mr. P. A. Wills gives a few words of advice to an R.A.F. officer on the handling of a sailplane.

An R.A.F. pupil has the controls of a primary glider explained to him. The exposed position is apt to be a little frightening at first.



Better than drill and maths. An R.A.F. pupil gets the feel of the controls while waiting to be started. A two-seater glider is seen in the air.

Wills realised that soaring had not lost its charm nor had he been up so high since war began!

As for the R.A.F., Easter Sunday was spent getting certificates: 16 A and one B. Of these, *ab initio* pilots obtained three while the rest had already done anything from 20 to 100 hours in aeroplanes in peacetime. Some of the latter should have been ready for their soaring certificates by Monday if the wind hadn't chosen that day to blow down the hill. The "hops," many of them winch launches to about 80 feet, numbered 374 for the camp, while the two-seater did 4 hr. 41 min. flying with 42 launches. All the pupils, including the *ab initios*, were extraordinarily quick to learn, and could tackle high and gusty winds in the none-too-controllable primaries without emotion. Only one machine damaged its wing roots in a heavy landing, but it was soon repaired.

Now that the ban on gliding has been reimposed, the question is whether this experiment will lead to anything. Great credit is due to Squadron Leader Searle, who has been working for months to get permission to make it. A training scheme for using the principal British gliding clubs for similar camps, to last a fortnight each, has already been worked out in detail. Whether gliding is of any use as a preliminary training, or is better than the Link trainer for weeding out unsatisfactory pupils, is a matter for controversy; but there is no question that the Easter campers enjoyed hugely this welcome relief from months of non-flying activity (or inactivity), and that, as pupils, they have been much quicker and noticeably safer than the Air Defence Cadets whom the gliding clubs dealt with throughout last summer. There is the further advantage that, unlike the A.D.C.s, many of them could reach soaring stage during a camp and put in a healthy number of hours in the air before it ended.

A. E. S.

Only a primary trainer, but plenty of thrill to be got out of a first flight. Note that the stick is over to the right to correct the slight bank.

SERVICE AVIATION

DESERT DEFENCE: A Bristol Blenheim of a Middle East bomber squadron co-operating with the army.

Royal Air Force and Official Announcements

The King's Gift to R.A.F.

THE King has presented a large autographed portrait of himself to the Headquarters of the Advanced Air Striking Force in France. This gift commemorates his visit in December last year when he inspected many units of the R.A.F. in France.

Changes in R.A.F. Higher Appointments

THE Air Ministry announces that at his own request Marshal of the Royal Air Force Sir Edward L. Ellington, G.C.B., C.M.G., C.B.E., is vacating the post of Inspector General of the Royal Air Force. The following appointments are announced in consequence:—

Inspector-General of the Royal Air Force: Air Chief Marshal Sir Edgar R. Ludlow-Hewitt, K.C.B., C.M.G., D.S.O., M.C.

Air Officer Commanding-in-Chief, Bomber Command: Air Marshal C. F. A. Portal, C.B., D.S.O., M.C.

Member of the Air Council for Personnel: Air Marshal E. L. Gossage, C.B., C.V.O., D.S.O., M.C.

Although the period of appointment of Marshal of the Royal Air Force Sir Edward L. Ellington, G.C.B., C.M.G., C.B.E., as Inspector-General of the Royal Air Force was due to expire in September last he has continued to carry out the duties attached to this post during the first six months of the war with conspicuous success at a time when the calls upon this office have been exceptionally heavy. He has not spared himself, and his capacity to visit even the most outlying Air Force Home Stations under the most severe weather conditions has attracted the admiration of all those with whom he has come into contact. On leaving the active list after forty-three years of service in the Army and Royal Air Force, he carries with him the good wishes of all who have been privileged to serve under him.

The vacancy as Inspector-General of the Royal Air Force has been filled by the transfer of Air Chief Marshal Sir Edgar R. Ludlow-Hewitt, K.C.B., C.M.G., D.S.O., M.C., from the post of Air Officer Commanding-in-Chief, Bomber Command, which he has held since 1937. This post has been one of supreme importance during the past three years. The standard of efficiency in this Command has been well demonstrated by the preparation for, and the conduct of, the raid on the Island of Sylt on the night of March 19th. Sir Edgar Ludlow-Hewitt has been personally responsible for dealing with the many complex problems arising out of the expansion programme and the introduction of new types of bombing aircraft. Only an officer with remarkable capacity for organisation combined with the qualities of leadership, could have successfully dealt with these problems and welded the Squadrons of the Bomber Command into the highly efficient striking force which they constitute to-day.

Battle Dress for the R.A.F.?

AN experimental battle dress has been issued to certain units of the R.A.F. in France. It is similar to that of the Army, but is blue in colour—rather lighter than normal R.A.F. blue—and is of rougher cloth than the ordinary uniform. The men to whom it has been issued will be asked for their opinions as to its suitability for general use and a report will be made to the Air Ministry. At present the men are very critical of the uniform.

Chaplain-in-Chief Retires

REV. J. R. WALKEY, Chaplain-in-Chief of the R.A.F., is to retire on his sixtieth birthday, on April 10. He has spent the last few days touring the squadrons in France, and on March 24 preached his farewell sermon in the headquarters town, a large number of officers and men being present to hear him.

20th Squadron Reunion

A REUNION meeting of No. 20 Squadron is to be held at 6.30 p.m. on April 27 at Jones' Corner Restaurant, Leicester Square, London. All past and present members of the squadron are invited and full particulars can be obtained from F. C. Collinson, 42, Byron Avenue, Snaresbrook, London, E.18.

Hornum Raid Awards

HIS MAJESTY THE KING has been graciously pleased to make the following awards to members of the Royal Air Force in recognition of gallantry on the occasion of the bombing raid on Hornum on the night of March 19, 1940:—

Distinguished Flying Cross

Sqn. Ldr. W. H. N. Turner (28215).
Act. Flt. Lt. J. J. Bennett (39056).

Distinguished Flying Medal

Sgt. J. L. Fletcher (564192).

Casualties

THE Air Ministry regrets to announce the following casualties on various dates:—

KILLED IN ACTION.—P/O. L. G. Bishop (41657); A/C.1 J. A. Butcher (515617); F/O. D. C. G. Clinkard (30855); Sgt. R. P. Glasson (580651); Sgt. C. C. Hobbs (740516); L.A/C. R. A. Mutton (551255); F/O. S. D. Slocum (28166); L.A/C. W. K. Wood (550803).

PREVIOUSLY REPORTED "MISSING, BELIEVED KILLED," NOW PRESUMED "KILLED IN ACTION."—P/O. A. D. Baird (91062); Flt. Lt. G. W. Garnett (90302).

WOUNDED OR INJURED IN ACTION.—P/O. B. H. Arkell (40498); A/C.2 J. T. Elliott (542385); Flt. Lt. H. B. Johnson (37182); P/O. A. J. Payn (33367); A/C.2 R. J. Pickering (623635); Sgt. J. A. M.

CANADIAN TRAINING: North American Harvard advanced trainers refuelling at the R.C.A.F. base at Trenton, Ontario. It will be noted that one of the machines has an adjustable inner cowling to suit it to Canadian conditions.

Reid (740945); L.A/C. J. Walton (812061); F/O. C. M. Wright (33351).

KILLED ON ACTIVE SERVICE.—F/O. W. W. Adam (39838); P/O. W. B. Adamson (40788); F/O. J. L. Atkinson (37340); Act. F/O. R. Bell (70791); A/C1 H. S. Burke (551687); F/O. J. P. Coveney (40291); Act. P/O. D. S. Dadson (42808); P/O. K. F. Fisk (41940); P/O. A. A. Greenberg (41919); Sgt. J. D. Hartley (580655); P/O. E. I. Hewett (41178); Sgt. E. H. Lomax (512633); P/O. A. C. Manaton (41600); A/C.1 F. J. Mantle (021138); Act. Sgt. A. E. Mawdsley (580968); F/O. S. C. Mottram (36164); A/C.1 A. Mullineux (610830); P/O. H. L. Niccolls (42145); Flt. Lt. R. M. Nobleton (28114); Sgt. N. J. Price (565189); L.A/C. B. Rees (611643); F/O. W. I. Scott (37832); P/O. A. J. Skidmore (40949); Sgt. K. J. Stanley (580570); Cpl. A. S. Telford (517356); P/O. A. S. Wardman (41502); P/O. R. E. West (41508); P/O. J. A. Woollen (41238).

WOUNDED OR INJURED ON ACTIVE SERVICE.—F/O. J. R. I. Bell (37312); P/O. E. R. Bowman (70793); Act. Sgt. H. L. Broughton (581168); P/O. A. P. Davis (41261); P/O. C. B. Elsdon (41913); F/O. W. G. C. Edmonds (42376); P/O. P. S. Goulder (40383); Cpl. W. Jenkinson (526644); A/C.2 A. L. Kennedy (552595); P/O. F. H. Posener (41735); Sgt. B. Raises (913822).

DIED ON ACTIVE SERVICE.—L.A/C. S. Douglas (510876); W/O. D. C. Dow (355626); A/C.1 J. V. Hanaghan (616195); Sgt. F. L. Lee (742543); A/C.2 W. T. Meacham (644220); A/C.2 H. J. Reid (702265); L.A/C. J. C. Wade (332190); Sgt. W. D. Williams (513598).

KILLED IN ACTION.—P/O. J. N. Carter (72448); A/C.1 P. W. Corvan (549742); L.A/C. J. C. Forster (524760); A/C.2 F. Hart (031366); Sgt. J. A. H. Potter (562838); Act. Sgt. A. K. Saxon (581022); P/O. A. Stewart (70819).

PREVIOUSLY REPORTED "DIED ON ACTIVE SERVICE," NOW REPORTED "DIED OF WOUNDS OR INJURIES RECEIVED IN ACTION."—A/C.1 R. Beattie (521868); L.A/C. T. C. McClure (816021); L.A/C. H. J. Legassick (551562).

PREVIOUSLY REPORTED "MISSING," NOW PRESUMED "KILLED IN ACTION."—Flt. Sgt. I. E. M. Borley (365199); A/C.2 G. T. Brocking (546065); L.A/C. J. L. Calpin (531154); Act. Wing Cdr. J. C. Cunningham (16219); F/O. H. D. Green (391555); A/C.2 R. Henderson (618765); Sgt. N. M. Kirkus (563852); Sgt. G. Miller (580160); Cpl. G. W. Park (524855); Sgt. A. E. C. Povey (360390); A/C.1 A. M. Rodger (543962); Sgt. H. H. Turner (508292); P/O. R. Turner (70689); Act. Sgt. B. G. Walton (550292); P/O. C. N. Whittington (36184).

WOUNDED OR INJURED IN ACTION.—P/O. J. A. E. Monette (41309).

MISSING.—Sqn. Ldr. F. W. C. Shute (32020).

KILLED ON ACTIVE SERVICE.—Act. Sgt. F. Dewar (522984); P/O. H. Dodgson (41525); F/O. G. C. F. Ely (70204); P/O. R. W. Farrow (41388); Sgt. S. W. Lenton (564249); A/C.2 A. W. B. Sanders (620465); P/O. R. J. Whitmarsh (41880); A/C.1 R. F. J. Wiltshire (559604).

PREVIOUSLY REPORTED "DIED ON ACTIVE SERVICE," NOW REPORTED "DIED OF WOUNDS OR INJURIES RECEIVED ON ACTIVE SERVICE."—A/C.1 C. A. Bates (511737); F/O. R. P. S. Davidson (70161); L.A/C. W. G. Kelly (620024); L.A/C. G. G. J. Lovegrove (527690); Sgt. E. McCluggage (521091); A/C.2 W. McEwan (624157); Sgt. J. MacLaughlin (516867); L.A/C. F. G. Powell (525528); Flt. Lt. M. P. Skinner (33286); A/C.1 S. Taylor (552191).

PREVIOUSLY REPORTED "MISSING, BELIEVED KILLED," NOW PRESUMED "KILLED ON ACTIVE SERVICE."—P/O. H. J. Keller (36173); P/O. J. W. C. Robertson (41533).

WOUNDED OR INJURED ON ACTIVE SERVICE.—F/O. E. V. Hulbert (39527).

DIED OF WOUNDS OR INJURIES RECEIVED ON ACTIVE SERVICE.—P/O. A. F. Delamore (33500); P/O. W. B. Hunter (40225); Act. P/O. G. W. Winder (77371).

DIED ON ACTIVE SERVICE.—A/C.2 E. S. Beresford (038810); Sister A. S. Ketley; A/C.2 R. J. Mackenzie (010346); A/C.2 G. Marshall (047538); L.A/C. H. T. Moult (568184); A/C.1 R. E. Parfitt (524625); A/C.2 D. W. Turner (639225); L.A/C. H. Wake (225769).

Balloon Barrage Vacancies

A LARGE number of men are needed by the Royal Air Force to man the greatly expanded Balloon Barrage. The recruits who are needed fall within two categories. The majority, amounting to 75 per cent., are required as Balloon Operators. Their ages must be between 35 and 45. The remainder, who may be between 18 and 42, will be employed as drivers of Balloon Barrage Lorries. Men who have worked as tailors, upholsterers, mattress makers, scaffolders and winch and hoist drivers will be particularly suitable for training. Those who are accustomed to driving lorries of 30 cwt., or heavier, are also needed. For both operators and drivers the pay on enlistment will be 2s. a day, in addition to uniform, food, accommodation, medical treatment, etc. Family and dependents' allowances are also payable. Driving bonus of 3d. a day is also authorised. When recruits have completed their training the pay will be increased to 3s. 6d. a day, with, of course, further increases on promotion.

Applications for enlistment should be made to the nearest recruiting centre, the address of which can be obtained from any Labour Exchange.

London Gazette

Royal Air Force

General Duties Branch.

The following are granted commissions for the duration of hostilities as Pilot Officers on probation:—(Jan. 17) Sgts. A. Cross, A. E. Lowe; Cpls. A. H. Draper, J. H. Higgleton; L.A/C. A. Brindley, H. E. Day.

The following Pilot Officers on probation are confirmed in their appointments on the dates stated:—(Nov. 5, 1939) J. H. Horan; (Nov. 14, 1939) C. N. Birch; (Dec. 14, 1939) D. S. Dickins; (Dec. 28, 1939) G. B. Atkinson; (Jan. 25) J. C. Cazziere; (Feb. 29) T. L. Patterson, R. Kidson, K. G. Taylor, D. E. Shorman, B. F'mucane; (March 6) K. A. Aldridge, W. R. Assheton, R. F. Beauclair, N. G. Bowen, J. A. Clark, D. V. C. Coles-Preedy, G. G. A. Davies, F. A. G. F. J. De Labouchere-Sparling, A. M. Dillon, G. E. Ellis, P. C. Gaylard, M. J. Gilks, P. R. Godby, P. E. J. Greenhous, D. R. Griffiths, J. C. M. Hawley, B. H. Herrick, A. J. Hill, A. R. De L. Inniss, D. H. S. Kay, W. J. R. Kirk, J. B. Latta, J. A. Little, P. E. A. Loat, M. G. L. Lovell, F. H. L. Mackinnon, A. Macleod, J. F. J. Macphail, H. K. Mitchell, J. H. T. Palmer, B. C. Paton, C. B. G. Peachment, F. Riley, G. H. Russell, R. W. Stokes, B. K. Thomas, S. R. Thomas, J. H. D. Tilson, L. J. B. Truscott, T. D. Welsh, H. L. Whitbread, E. H. Whitehouse, D. Whitley, R. C. Wright, M. H. Young, A. B. Lawton, H. J. Mann, A. J. Rippon, W. R. Sloane, E. Walker, L. E. Giles, W. Gilmour, P. W. Peters.

The following Acting Pilot Officers on probation are confirmed in their appointments and graded as Pilot Officers on the dates stated:—(Nov. 6, 1939) E. L. Wooldridge; (Feb. 24) D. Welply.

The following Acting Pilot Officers on probation are graded as Pilot Officers on probation on the dates stated:—(Oct. 23, 1939) J. C. Carriere; (Jan. 31) W. D. Boxwell; (Feb. 1) I. H. Cosby, G. A. Atkinson, G. M. Bailey, C. D. Frost, J. A. Heath-Brown, L. J. Huggett, I. H. Kingwell, E. G. Pett, E. S. Roberts, A. Takideli, H. C. M. Bamber, J. F. Percival, E. R. M. Apoleton, S. W. Ashton, J. J. Barr, K. C. Dryden, D. Evans, H. C. E. Fenton, F. A. S. Fletcher, R. C. Frost, R. A. Hubber-Richards, P. J. Langham, J. M. Milburn, T. A. Nixon, J. R. S. Oeclofse, E. B. Panter, G. Parker, N. E. Pocock, T. H. Rees, B. Reynolds, D. A. A. Ross, S. C. Stone, M. R. Tagg, H. C. Upton, L. G. Williams, C. Cookson, R. L. Maurer, M. Rowell, R. E. Shaw, C. R. Young, R. A. Greenhill; (Feb. 4) P. H. Nergehauer, N. Dayson, N. L. Letten, R. B. Askquith Ellis, B. L. Fox, R. M. Buchanan, A. J. Hereford; (Feb. 9) C. A. Hobson; (Feb. 10) D. F. Lenten, E. F. V. Copsey, P. W. Lovell, A. C. Hamman, F. N. Hargreaves, J. M. Jackson, R. A. Rhodes, P. Sisman, A. J. J. Steel, E. H. Upton, R. O. Day, S. S. Duff; Feb. 13) D. C. Pascall, S. E. Pattinson, J. R. Rainford, R. T. Stubbs, P. J. S. Boggis, R. Baynes, A. V. Gilkins, G. H. Green, P. A. Haggarty, G. W. O'N. Fisher, D. G. Hayward, J. L. Maude-Roxby, E. G. Dean, R. E. Kirkby; (Feb. 24) H. C. S. Armstrong, M. A. Kyle, S. G. Whiting, C. H. Gould, N. H. Bigsby, K. C. D. Dart, R. G. Kennedy, C. R. Montgomery, S. J. Rawlings, A. R. Blackett, G. V. Donald, H. M. A. Britton, H. A. Litvin; (Feb. 28) J. J. Le Roux, O. T. Lamb, H. W. Eliot, V. D. M. Roe, W. P. Olesen, A. E. Le Breuilly, R. H. Dibnah; (March 2) H. Downey, W. A. Mostyn-Brown, B. A. Primavesi, D. H. Van Der Linden, J. N. Westcott, R. J. Boret, G. C. R. Barker, J. C. Fleming, K. J. Hide, H. W. Noble, T. F. O'Byrne, F. T. Roberts, G. D. Gray, J. A. Temperley; (March 4) A. W. McCandlish, D. P. Tuppen, I. Dromgoole.

The following Flying Officers are promoted to the rank of Flight Lieutenant:—(March 21) H. C. Daish, A. F. M. Sisley.

The following Pilot Officers are promoted to the rank of Flying Officer on the dates stated:—(Feb. 24) M. G. Robin, R. T. P. Davidson; (Feb. 29) D. T. Parrott; (March 18) G. S. Richardson; (March 20) G. Howden, F. B. Gabb.

The following temporary promotions to the rank of Squadron Leader are made with effect from March 1:—R. E. Weld (Capt., Royal Tank Corps); R. B. Pakenham (Capt., Border Regt.); P. W. Stansfield (Capt., Royal Tank Corps); T. K. Lacey (Capt., Glos. Regt.); R. C. MacK. Ferrers (Capt., The Cameronians); J. W. Deacon (Capt., Worcs. Regt.); C. L. Troop (Capt., D. of W.'s Regt.); H. L. Maxwell (Capt., Northants Regt.); R. E. S. Skelton (Capt., Royal Tank Corps); A. C. G. Wimbush (Lt., Royal Tank Corps); E. D. Joyce (Capt., R.A.).

The following Flying Officers relinquish the acting rank of Flight Lieutenant on the dates stated:—(Sept. 28, 1939) H. E. Bufton; (Oct. 31, 1939) H. C. Marshall; (Nov. 19, 1939) R. J. Oxley; (Dec. 22, 1939) C. F. Darbishire; (Jan. 1) J. B. Burnett, W. V. Gordon.

Service Aviation

The following resign their short service commissions on the dates stated:—Pilot Officers (Feb. 28) G. L. R. Ansell; (Feb. 29) J. Palmer-Sambourne. Acting Pilot Officer on probation:—(March 16) G. L. D. Cox.

The personal numbers of the following are as now stated, and not as in the *Gazette* of Feb. 27:—M. E. F. Barnett (36235), E. V. Best (36236), E. C. J. Cameron (36237), F. H. Denton (36238), J. Duigan (36239), D. N. Gilmour (36249), A. G. L. Humphreys (36241), L. D. Loasby (36242), D. H. McArthur (36243), M. H. MacFarlane (36244), J. E. S. Morton (36245), H. A. Outram (36246), G. N. Parker (36247), C. A. Pownall (36248), D. M. Rolph-Smith (36249), R. C. E. Scott (36250), J. S. Shorthouse (36251)

Equipment Branch.

Pilot Officer on probation R. Williams is confirmed in his appointment (Jan. 23).

Medical Branch.

The following Warrant Officers are granted commissions for the duration of hostilities as Quartermasters and Flying Officers on probation:—(Dec. 19, 1939) B. Fellows, H. E. Vincent, W. D. Richardson, T. H. A. Leaver.

F/O. S. M. Bieber, M.R.C.S., L.R.C.P., is promoted to the rank of Flight Lieutenant on Jan. 9, with seniority of July 9, 1939; the commission of F/O. E. H. Lamb, M.B., Ch.B., is ante-dated to March 6, 1939, and he ceases to be seconded to the London Homœopathic Hospital, with effect from March 1.

Princess Mary's Royal Air Force Nursing Service

The following Staff Nurses are confirmed in their appointments on the dates stated:—(Jan. 17) Miss E. M. Pikesley; (Jan. 24) Miss B. Slader; (Jan. 31) Miss K. Smith, Miss M. E. Hale; (Feb. 1) Miss L. M. Murdoch-Brown; (Feb. 4) Miss K. F. Niblock; (Feb. 21) Miss E. M. Mackenzie.

Sister Miss E. K. Hunt relinquishes her appointment (Jan. 17) (substituted for notification in the *Gazette* of Feb. 13).

Royal Air Force Reserve

RESERVE OF AIR FORCE OFFICERS.

General Duties Branch.

G. L. C. Jenkins is granted a commission in Class CC as Flight Lieutenant (Feb. 26).

The following Flying Officers are promoted to the rank of Flight Lieutenant on the dates stated:—(Dec. 23, 1938) W. B. Wilson; (Sept. 3, 1939) W. Bentley, D.F.C., S. Herbert, D. J. Stewart, A. R. Macdonald, D. L. Forestier-Walker, M. N. Hancocks, R. L. Palmer, B. C. Mason, J. G. Butt-Reed, H. D. Mitchelmore, W. L. McLaren, A. P. Wayte, W. C. McNeil, H. C. D. Hayter, G. G. Dixon, A. E. Clouston, A.F.C.; (Oct. 22, 1939) M. A. Smith.

The following Pilot Officers are promoted to the rank of Flying Officer on the dates stated:—(Nov. 30, 1939) B. P. Wallis, J. H. C. Young; (Jan. 6) A. G. Hall, R. G. Burke, J. A. Newton, T. W. Hamlin, W. H. L. Dudley.

The following Flying Officers are transferred to the Administrative and Special Duties Branch on the dates stated:—(Nov. 26, 1939) D. H. C. Hull; (Feb. 6) D. Beevers.

The following relinquish their commissions on cessation of duty on the dates stated:—Squadron Leader: (Feb. 5) M. Bennetts, M.C. Flight Lieutenants: (Nov. 18, 1939) T. H. Gledhill; (Jan. 8) J. A. J. Farrell, D.S.O.; (Feb. 27) T. Forrester.

Sqn. Ldr. J. Kemper, M.B.E., relinquishes his commission in Class CC (Feb. 1); the notifications in the *Gazette* of Nov. 21, 1939, concerning Flt. Lts. A. G. Adams and G. L. Shipton are cancelled; the notification in the *Gazette* of Mar. 5 concerning Flt. Lt. A. H. Goldie is cancelled.

Royal Air Force Volunteer Reserve

General Duties Branch.

The following are granted commissions for the duration of hostilities as Pilot Officers on probation on the dates stated:—(Mar. 4) E. H. Garland; (Mar. 5) G. W. Cannon; (Mar. 7) Sgts. E. W. Bell, J. E. Bellingham, E. A. Benjamin, G. W. V. Biden, P. Billyeald, W. B. Bilton, C. C. Blair, P. H. Blowfield, J. F. Bridge, A. R. Brown, R. K. Browning, J. F. Castle, B. R. W. Hallows, R. A. Payne, J. C. S. Turner. L.A/C. H. W. Cottam, C. E. English, N. C. Langham-Hobart, F. Sydenham, J. E. P. Thompson.

S. J. Hill is granted a commission for the duration of hostilities as Acting Pilot Officer on probation (Mar. 7); P/O. J. A. de Laszlo is transferred to the Administrative and Special Duties Branch (Jan. 2); F/O. S. J. Beattie relinquishes his commission on cessation of duty (Mar. 16); Flt. Lt. A. Sutherland, M.C., D.C.M., relinquishes his hon. commission on cessation of duty (Feb. 4).

The following Flight Lieutenants relinquish their hon. commissions on the dates stated:—(Feb. 3) G. S. McNaught, D.S.O.; (Feb. 4) F. B. Abbott, D.S.O., R. A. Bradley, C.M.G., J. V. Campbell, V.C., C.M.G., D.S.O., J. H. de W. Carruthers, O.B.E., M.C., C. G. Gowing, W. E. Guinness, C. M. T. Hogg, D.S.O., J. E. de Kantzow, R. G. Maclaine, M.C., F. H. Maynard, C.B., D.S.O., M.C., S. Mead, D.S.O., J. R. Robertson, D.S.O., H St. G. S. Scott, C.B., D.S.O., E. C. Seconde.

Administrative and Special Duties Branch.

A. B. Boyle, C.M.G., O.B.E., M.C., is granted a commission for the duration of hostilities as Air Commodore (Feb. 19). (Substituted for notification in the *Gazette* of March 12.)

The following are granted commissions for the duration of hostilities in the ranks and on the dates stated:—Flying Officer: (Feb 23) L. M. Timmins. Pilot Officers on probation: (Dec. 6, 1939) J. A. Brooks; (Feb. 12) C. N. Prentice; (Feb. 19) L. S. Smith; (Feb. 26) R. W. Armstrong, P. E. Axon, G. E. F. Barham, C. A. Clark, D. P. Furneaux, J. E. Ives, A. J. Plummer, E. D. Racine-Jaques; (Feb. 27) J. E. Bembaron, J. V. Bowring, W. P. M. Brettell; (Feb. 28) W. C. Adams, F. Begley, J. H. Hudson, C. R. O'Brien; (Feb. 29) N. W. Boyce, C. V. L. Hooman, H. B. Milling, J. P. Thompson; (Mar. 1) I. H. Bowhill, A. Gregory, R. H. Mais, T. Moss, L. N. Reynolds; (Mar. 2) R. A. Hoskins, N. D. Williams; (Mar. 3) R. J. Aitken, G. Ballance, E. Barrett, F. S. Brooks, H. L. Chadwick, W. E. Dowling, W. Henderson, R. H. Kemp, F. E. Le Fevre, M.C., P. L. Lorraine, J. U. McKinnon, S. R. Norcott, E. G. Penhall, E. T. McC. Routledge, S. A. Scott, A. H. W. Wall; (Mar. 4) J. H. Bolt, D. S. Chetwood, F. Conway, V. F. Crosthwaite, A. R. Enshaw, H. B. Groves, C. Higham, D. C. Lynch, A. J. F. McDonald, A. R. Saward; (Mar. 5) A. C. H. Bircham, S. Cleobury, R. S. Craddock, N. G. Durham; (Mar. 6) C. H. Bell, O.B.E., N. S. Dongall, D.F.C., A. J. Ford; (Mar. 7) J. Fairhurst, W. E. Guinness, J. W. Murdoch; (Mar. 9) W. MacP. Barber; (Mar. 10) H. A. Allback, E. G. Barnard, L. M. Bayliss, H. Black, H. A. Chapman, S. H. Gaskell, C. C. H. Grosse, E. D. Hicks, M. G. Milsom, M.C., R. L. Rogers, W. E. Smith, R. H. Speight, G. Westcott, H. K. Wilson; (Mar. 11) A. J. Lewis, A. G. L. Miller, C. G. Reid-Walker, A. G. F. Wickenden, C. Zerenner; (Mar. 12) F. D. Berridge, P. G. Child, I. MacN. Parsons.

M. S. Anthony is granted a commission as Pilot Officer on probation for the duration of hostilities (Dec. 14, 1939) (substituted for notification in the *Gazette* of Jan. 16).

The following Pilot Officers on probation are confirmed in their appointments and promoted to the rank of Flying Officer on the dates stated:—(Sept. 2, 1939) J. B. Newman, M.B.E.; (Sept. 4, 1939) G. N. H. Perry; (Sept. 7, 1939) T. W. Little, J. S. Smith, R. T. R. Thornhill, G. S. Toller; (Sept. 8, 1939) H. W. Allen, P. E. L. Bramley, P. F. Cook, R. Crofton; (Sept. 9, 1939) E. A. Johnstone, N. Pettitt; (Sept. 11, 1939) D. T. M. Davies; (Sept. 13, 1939) A. T. Ryland; (Oct. 23, 1939) E. Vredenburg.

F/O. H. O. Edmonds relinquishes his commission on account of ill-health (Mar. 7). The notification in the *Gazette* of Nov. 21, 1939, concerning Maj. G. L. Shipton (S.U.L., R.A.) is cancelled.

Accountant Branch.

Maj. E. Chuter, M.C., is granted a commission as Flight Lieutenant (Feb. 19).

Equipment Branch.

The following Acting Pilot Officers on probation are graded as Pilot Officers on probation on the dates stated:—(Jan. 20) A. G. Jones; (Jan. 23) R. T. Chapman; (Feb. 12) V. A. Hamel-Smith.

Medical Branch.

The following are granted commissions for the duration of hostilities in the ranks and on the dates stated:—Flight Lieutenants: (Feb. 27) H. B. Hunt, M.D., Ch.B., M.R.C.P., F. H. King, M.B., B.Ch., M.R.C.S., L.R.C.P., C. R. McLaughlin, M.B., B.Chir., F.R.C.S. (E). Flying Officers: (Feb. 27) J. F. Harper, M.B., Ch.B., J. C. Hill, M.B., B.Ch., P. S. Meyrick, M.B., B.S., M.R.C.S., L.R.C.P., P. D. Samman, M.B., B.Chir., R. W. Sanderson, M.R.C.S., L.R.C.P., O. H. Sennett, M.R.C.S., L.R.C.P., G. J. Waters, M.B., B.Ch.; (March 5) W. A. Bridgwood, M.B., B.S., B. Burns, M.R.C.S., L.R.C.P., K. R. Hudson, M.B., B.S., G. C. W. Jones, M.R.C.S., L.R.C.P., J. S. A. Linton, M.R.C.S., L.R.C.P., J. N. Macdonald, M.B., B.Ch., M.R.C.S., L.R.C.P., R. H. Moore, M.B., B.Ch., R. Piper, M.B., B.Chir., M.R.C.S., L.R.C.P., D. Stevenson, M.B., Ch.B., J. E. T. Strickland, M.R.C.S., L.R.C.P., H. B. Sutton, M.D., B.Ch., J. Walsh, M.B., B.Ch., D.P.M., H. Whittle, M.B., Ch.B.

The following Flying Officers are promoted to the rank of Flight Lieutenant on the dates stated:—(Feb. 28) C. R. E. Freezer, M.R.C.S., L.R.C.P., M.B., B.S.; (March 7) J. C. Adams, M.R.C.S., L.R.C.P., J. E. W. Barnes, M.R.C.S., L.R.C.P., B. B. Bridges, M.R.C.S., L.R.C.P., G. D. Dawson, M.B., Ch.B., W. J. Lloyd, M.B., B.Chir., M.R.C.S., L.R.C.P., O. Scarborough, M.B., Ch.B., W. J. Scott, M.B., Ch.B., A. B. Sproule, M.B., Ch.B.; (March 14) T. S. Davies, M.R.C.S., L.R.C.P., I. H. Matheson, M.B., Ch.B., J. Scholefield, M.R.C.S., L.R.C.P.

Dental Branch.

F. G. Hollier, L.D.S., is granted a commission for the duration of hostilities as Flying Officer (Feb. 28): F/O. H. Gordon relinquishes his commission on account of ill-health (March 1).

Chaplains' Branch.

The Rev. J. S. D. Rider, M.A., is granted a commission for the duration of hostilities with the relative rank of Squadron Leader (March 1); the Rev. R. U. Butler is granted a commission for the duration of hostilities with the relative rank of Squadron Leader (Feb. 23). (Substituted for notification in the *Gazette* of March 12).

Errata.

In the *Gazette* of Feb. 27 for J. N. K. Le F. Shepherd read J. N. K. Le Fleming Shepherd, and for A. E. R. F. Langford read A. E. R. Fitzclarence-Langford.

Auxiliary Air Force

General Duties Branch.

No. 614 (COUNTY OF GLAMORGAN) SQUADRON.—P/O. H. N. Ross is promoted to the rank of Flying Officer (Feb. 3).

No. 615 (COUNTY OF SURREY) SQUADRON.—P/O. F. G. Bowling is transferred to the Administrative and Special Duties Branch (March 13).

No. 923. (WEST LANCASHIRE) SQUADRON.—F/O. J. C. Burgess resigns his commission (March 1).

No. 948 SQUADRON.—The Rt. Hon. the Earl of Elgin and Kincardine, K.T., C.M.G., T.D., LL.D., is appointed Honorary Air Commodore (March 28).

Equipment Branch.

Flt. Lt. T. Notley (I.A.O.C.) relinquishes his commission on cessation of duty (April 5).

Women's Auxiliary Air Force

The following are appointed Assistant Section Officers:—(March 16) Sergt. Miss W. M. Baker, Aircraftwoman 2nd Class Mrs. R. A. Birchall, Sergt. Miss M. A. L. Brown, Cpl. Miss M. L. M. Campbell, Aircraftwoman 2nd Class Miss R. C. Campbell-Rogers, Cpl. Miss A. P. T. Carson, Aircraftwoman 2nd Class Mrs. J. G. H. Ellis, Cpl. Miss J. L. M. Henderson, Cpl. Miss M. E. R. Jackson, Aircraftwoman 2nd Class Miss C. M. King, Cpl. The Hon. Miss V. M. Lyttelton, Sgt. Miss M. W. Parker, Sgt. Miss C. E. M. Smith, Cpl. Miss S. E. Tylden, Cpl. Miss M. R. Wilkinson.

INSPECTOR-GENERAL: Air Chief Marshal Sir Edgar R. Ludlow-Hewitt, K.C.B., C.M.G., D.S.O., M.C., recently appointed Inspector-General of the Royal Air Force.

THE EVOLUTION of AIR STRATEGY

The Siege War on Land Affects Air War Policy : Is the Douhet Theory Dead? The Soldier Mind

By CAPTAIN NORMAN MACMILLAN, M.C., A.F.C.

PERHAPS the R.A.F.'s big raid on Hornum (Sylt) will mark the beginning of the application of air power on the grand scale, which so far had been absent from the strategy of both Germany and the Allies in relation to the major war between them. For no one could call the raid on Scapa by fourteen bombers, which brought down the wrath of the R.A.F. on Hornum, the conduct of air operations on a big scale.

For more than six months air operations on both sides have been marked by a restraint which most people in the cities of Great Britain have taken as a sign that this war is not by any means the kind of war that the Jeremiads of the past have painted. But Government speakers, on the other hand, have taken pains to point out that the period of calm may not be permanent.

Why have the hot dogs of air war been thus kept back from the feast of Mars?

Against Poland, Germany—and against Finland, Russia—employed air power on a relatively big scale from the start. I use the word "relatively" in the sense of comparison with the air forces arrayed against them.

There must be reasons for this different conception of the major war and the minor wars—all of which form part of one vast campaign comparable to that series of operations which comprised the Napoleonic campaign. (We are now in the sixth year of the new German war.)

I refuse to believe that our enemies subjugate the process of reason to the spinning-wheel of fortune. The history of the rise of Nazidom belies the tale of mumbo-jumbo bewitchery upon the mount of Berchta, even if be true the legend that Berchta was an evil spirit that lived in the Valley of Berchtesgaden.

We must apply a counter process of reason in the search for truth.

A Simple Explanation

When one seeks to solve a problem the solution of which is difficult to find, it often proves—retrospectively—that false trails produced a searching for more than was ever there. The correct evaluation is often the simplest. And the simplest explanation of the apparently contradictory swiftness of air operations in the minor wars, compared with their slowness of pace in the major war, is that the minor wars involved important military land actions from the outset.

Our last big war of 1914-1918 did not last long enough for the true potentialities of the air bomb to penetrate our soldierly minds of the period, which were still steeped in the traditions of horses and lances. But in more recent years the change in the mind of the soldier has elsewhere become evident in the use of the bomb. In the wars in China, Abyssinia, Spain, Poland and

THINGS ARE NOT ALWAYS WHAT THEY SEEM : According to the inscription on the back of this photograph it shows "one of the bomber crews telling his experiences to fellow-officers on landing at his home station after the successful raid on Sylt." Either the R.A.F. officers must have disguised themselves in German Air Force uniforms, or the Germans bombed their own island !

Finland the bomber has functioned under the orders of the army. With the ground war came air war, the one a concomitant of the other. Each of those wars was a war of movement requiring the advance of troops to occupy territory the conquest of which was the primary objective of the campaign.

Thus it has been said that the Douhet theory of total air war is dead.

Perhaps it is too soon to say so.

None of the wars I have mentioned was suited to the application of the Douhet theory. A skilled physician does not proffer the wrong physic. Neither does a skilled strategist employ the wrong tactics. The Douhet theory of conquest by means of the destructive effect of air attacks in mass against areas is not required in a war of movement where the thrust of ground forces is achieving, *and must achieve*, success if the campaign is to end in victorious occupation of enemy territory.

They say, too, that the need supplies the man. If that be true, perhaps it is because we have not yet had need of such a one that we have no Nelson of the air.

Yet it may be that before this war is over we may need a Nelson of the skies.

A Significant Action

Surely it is significant that in this first year of war the first great air action of the Royal Air Force was launched against an enemy base whence bombers had flown to attack a British naval base. To-day the British Navy is a target from below the water and above it. Seldom is it a target for a surface ship when it can battle as of yore. When it meets its foe as he was met in the battle of the River Plate the British seaman is the same old fighting force he always was. But when attack is launched against the Navy through the skies, retaliation must strike also from the skies. And that is the first line of the first paragraph of the first page of the writing of the Douhet theory.

If the weapon in your hand cannot reach the enemy you must grasp another.

David, when he slew Goliath, understood what we now call the Douhet theory.

With the armies of the Allies and those of Germany lining rank upon rank, gun behind gun, tank behind tank, with wire and trench and land-mine and tank-trap and fortification reduplicated to resist hostile attack, we see on the Western Front the modern setting for a war of siege.

But neither side has the true prerequisite for effective siege warfare—the complete encirclement of the enemy. In spite of that it is still siege war, for each side has its national economy so thrown out of gear as to produce a wearing-down effect. The process will be slower, that is all.

Because we have no contiguous land frontiers, Germany hits out at our ships regardless of their kind. As every ship of any nationality might be charterable by us, Germany sinks all ships, no matter what flag they wear.

So, while the Allied armies hold the fortified lines and their navies keep the great oceans and the coastal waters clear of enemy surface ships and sweep under the waters to disinfest them of mines and submarines, we must look to the skies for the power of retaliation.

Against the territory of the enemy, ships, guns, tanks and infantry are at present immobilised. The air force alone is not immobilised. It is the same on both sides of the Rhine.

Mobility Immobilised

Hitherto the only mobile forces that can strike against the territory of either side have been held in leash.

Why?

Is it that both sides hesitate to use them to avoid the perpetration of a mutual hari-kari?

Or is it that the soldier mind insists that they be not employed until such time as the soldiery are ready to make their traditional grand assault?

Or is it that neither side was really ready for the great challenge when the die was cast in September, 1939?

Probably it is a mixture of all three.

I know that in June, 1939, it was being said in whispered breath: *If only we can keep them quiet until the year is out!* The innuendo in the whisper was that by the beginning of 1940 we should have new airplanes of far more formidable striking power than the transition period aeroplanes, whose design was the sky-sign of our first rearmament. Probably the same remark was being made in Germany in a still lower whisper.

So, while we have waited patiently for the soldierly mind to make itself up, and for the political fingers to grasp the nettle, the Air Force has been relegated (figuratively) to a front row in the spectator's gallery. Over Germany, Austria, Poland and Czechoslovakia to photograph and drop leaflets; over the Maginot Line to prevent photographs from being taken; over the Siegfried Line to take photographs. Defending ships against raiders. Convoy work. Search for submarines. The whole tale of six months' activity by the Royal Air Force (except for the sad addition of casualties) reads more like that of a gigantic exercise. And that is precisely what it has been: an exercise, a testing period, from which the real strategy of air war has now derived.

(Next week: On Mobile and Fixed Air Forces.)

Air Freighting

THREE airlines operating in the mid-western districts of Canada, northern Manitoba, and Ontario together carried nearly ten million pounds of air freight during 1939. The exact figure was 9,579,000 lb., and much of it was for gold-mining work going on in that area.

Amsterdam to Lisbon

K.L.M. announce the starting on April 2 of a twice-weekly service from Amsterdam to Lisbon via Oporto connecting with Pan American's Clipper service across the Atlantic. Only mail and freight will be carried at present. The establishment of the service will reduce the mail time between New York and Holland to four days.

New Planes for K.L.M.

TWO of the four Douglas DC5 airliners on order for the K.L.M. Royal Dutch Air Lines are now completed and are to be flown to the K.L.M. West Indian headquarters at Curaçao, in the Dutch West Indies, from the Douglas factory in the U.S.A. They were originally intended for the K.L.M. European routes, and would probably have been used on the Amsterdam-London route had conditions been normal. As it is, they will fly on the West Indian network, principally between Curaçao, Trinidad, and Tobago.

Airways Corporation Takes Over

ON April 1 the British Overseas Airways Corporation formally took over the interests of Imperial Airways and British Airways, and a cash payment of 34s. 6.615d. per share will be made on April 4 to holders of Imperial Airways shares. This amount is arrived at by adding to the purchase price of 32s. 9d. for each £1 share interest at the rate of 4 per cent. from April 1, 1938, less income tax at the rate of 6s. 3d. in the £1, which is 1s. 9.615d.

Though the chairman of Imperial Airways stated on May 22 last that shareholders would be permitted to take up stock in the Corporation, they will not now have this right as no public offer of the stock is being made. The stock is being disposed of in some other way. The terms of this disposal have not yet been disclosed, but it is reported that they will be announced in Parliament shortly and a White Paper on the subject will be issued.

COMMERCIAL AVIATION

SPRING SEES A REVIVAL OF COMMERCIAL FLYING, BUT NOT IN THIS COUNTRY. Before the start of the first Swissair Douglas on the inaugural flight of the new Locarno-Rome route.

THE FACE AT THE WINDOW

"A. Viator" on the Luxury of Being Allowed to See : Brass Hatters and the March Hare

"SUMMER is icumen in, so roll out the barrel, the barrel of gin." Which remark, rather to my surprise, is poetry and only shows what the first spring marsh marigold, bog myrtle blossom or water lily seen nodding a slender head on our airport surface will do to a bloke.

Summer timetabies are in the air, and there's a fine drying wind, so as I say, roll out the barrel, trundle forth the tun and enjoy your little selves. There is, however, no need to overdo it, and this is a word for the ear of the Air Ministry who, when they gird up such loins as they may possess, are inclined to be a bit overwhelming. There is no need to roll out a 50-gallon barrel and push it down a steep slope at a peaceful picnic party in the meadow below, which is about what they have done to the smaller air transport companies, and the barrel is in no sense a hospitable one, but full of cement in its most solid form.

My great-great—, anyway, a jolly forbear of mine, way back in 1802, did a trip from Truro, Cornwall, to London in a gig, and despite toll bars and the bars of many a cheery tavern he made it in 14 days for the single journey. If the railways are going to run air transport it's me for a gig in future.

Meanwhile, the neutrals are doing quite a lot of flying, and you can pop over to Amsterdam on any of four services daily, one of which is run alternate days by the Danish and the Dutch companies so that you may travel in a Douglas D.C.3, or in a Focke-Wulf Condor.

The Scandinavian Air Express, famous in peacetime for many a past year, is still going strong. At the moment you change from a Dutch D.C.3 to a Swedish one (if Mr. Douglas, of U.S.A., will pardon me) at Amsterdam on the journey to Stockholm, and this standardisation of flying stock has definite advantages. You hardly notice the difference, except perhaps that the Steward will recommend Swedish Schnapps whereas the Dutchman you have just said good-bye to was in favour of Dutch "Bols."

But there is one even more important difference and that is that between Amsterdam and Stockholm the windows are plain glass. Travellers tell me that it seems quite a luxury after the opaque windows on the England-Holland stretch, and it is interesting to see how much one values little things like that, which nobody ever cared twopence about in pre-war days. Why, bless me, it's worth a trip to Belgium or Holland just to see ordinary street lamps and neon advertising signs blazing away at nights, and if you can borrow a car and drive with headlights at full blaze you feel like a million dollars.

But to get back to these opaque windows, it is really quite a selling point, they tell me, to be able to tell passengers that after Amsterdam they will be able to look out of the windows. So much is this so that when A.B.A., the Swedish air lines, operate right through to England from Stockholm in the day, as they will quite soon, it is proposed to render the windows opaque in Holland and to lighten the darkness of passengers on the outward journey when they reach Amsterdam. I imagine some form of opaque glass shutter with a lead seal on it will be used for the purpose.

Things being the way they are in civil aviation, I wonder no caricaturist has had the idea of a sketch entitled "The Brass Hatter's Tea Party." It might feature the Hatter in uniform and brass knobs, as is perhaps but fit and proper in these piping times of war, and the March Hare would, of course, be present, the straws in his hair showing which way the wind was blowing.

They would all be pointing to an Egg in a bowler hat and with the usual features and intelligent expression of an egg. That would be those departments of civil aviation which have failed to protect it according to their bounden duty. Humpty-Dumpty, in fact, who, it will be remembered, sat on the fence or wall and ultimately had a great fall. The Dodo would be present, of course, a bird wholly extinct so far as progress is concerned and practically incapable of flying. Need I add that the Dodo would represent the railways, and would keep screaming, "The Dodo has Wings," and would constantly preen a pair of rudimentary flippers? Before him on the tea-table would stand a huge gold pot of rich jam, cryptically labelled "Money for."

The March Hare and the Brass Hatter would be busy stuffing the comatose Dormouse, i.e., civil aviation, into a large teapot with a screw-down lid which, like Joanna Southcott's box, is not to be opened for 100 years. Then in the top right-hand corner of the picture, there would be the Cheshire Cat (N.A.C.) in a state of rapid fade-out, with the sort of inane grin on its face suitable to a short and entirely futile career.

Alice, representing sanity, decency and a sense of fair play, would long ago have quit the party. I present this idea entirely gratis, and without obligation, to any brother of the crayon, for I am not ungenerous in such matters and do not even expect the courtesy of an acknowledgment.

One day last week there was a startling story of an Imperial Airways' "Ensign" on the Paris route being turned back by the R.A.F. because there was a bit of sky bother in those parts. Normally there are ways of warning commercial pilots to turn back on these occasions which do not necessitate R.A.F. fighters diving and swooping all round the commercial craft, and, anyway, what is the matter with the fighter signalling his ideas to the commercial pilot?

It is useless for the fighter to make passes at the other plane, for the commercial captain cannot be expected to translate swoops and dives into plain English, and no neutral pilot can be expected to make head or tail of that sort of thing. Is the fighter pilot merely playing at being a seagull, does he want to borrow half a crown, or is he an old pal trying to explain that he will be in the bar of the "Bottlenosed Bombadier" around six p.m. the same evening?

Nobody knows, but I would not go so far as to say nobody cares. One is always anxious to oblige a fighter pilot with a hair trigger under his finger. A. VIATOR.

The South Africa Services

THIS week the pre-war frequency of the flying-boat service to South Africa was restored. On the outbreak of war the Empire services to Africa were reduced to a once-weekly return flight to Durban and a once-weekly return flight to Kisumu. It has now been decided to extend the Kisumu service to Durban, thus restoring the flying-boat services to South Africa to their pre-war frequency.

Swissair Services

AFTER a suspension of more than six months, dating from August 28, 1939, Swiss air transport was partly resumed on March 18, when a daily air service (except Sundays) was started by Swissair with Douglas DC 2s between Locarno and Rome. The distance, 373 miles, is covered in 2½ hours non-stop. It is expected that the Locarno-Barcelona route (559 miles) will also be started shortly with DC 3s running daily (except Sundays) and taking 3½ hours non-stop. By means of these two lines, neither of which was run before the war, Switzerland will again be linked up with the international air routes from which she has been cut off.

The railway distances between Locarno and the chief Swiss towns being comparatively small (Zurich-Locarno 140 miles, Basle-Locarno 199 miles, Berne-Locarno 200 miles), it will be an easy matter to complete the whole journey from these towns to Rome or Barcelona within a day.

The opening of a third air service is contemplated in the near future, from Altenrhein (on Lake Constance) to Munich, but for mail and freight only. Germany has already given her consent to the operation of this route, which was a pre-war one.

THE NEWSPAPER SERVICE. A Belgian aeroplane loading up at an aerodrome "Somewhere in the South of England."

Pan-American to New Zealand

PAN-AMERICAN AIRWAYS has been awarded a certificate by the Civil Aeronautics Authority to allow it to operate on the route from San Francisco and Los Angeles via Hawaii to New Zealand.

Western Airways

IT is reported that the Barnstaple Chamber of Commerce has decided to support the application of Western Airways for permission to operate an air service between Barnstaple, Swansea, Cardiff and Bristol.

Let There be Light

FLYING-BOATS starting from a South Coast port for Egypt, Africa, India and Australia need no longer have their windows obscured, the Air Ministry having given permission for the removal of the black-out. "A. Viator" has something to say of the luxury of being able to look out of the windows on the Amsterdam-Stockholm run.

Trans-Canada Air Lines

THE response of the travelling public to the services offered by Trans-Canada Air Lines considerably exceeded expectations in 1939, states the annual report. The load factor for all schedules during the year was 56.1 per cent. and planes flew 3,125,393 miles in 19,499 hours. Less than 2 per cent. of scheduled mileage was cancelled on account of adverse weather. Mails carried totalled 452,899 pounds, and express-freight amounted to 45,819 pounds, in 10,897 shipments. The total number of passengers carried was 21,569, the average passenger journey being 559 miles. At the end of the year personnel totalled 497. Flying equipment has been satisfactory, and the service life of the engines may prove to be nearer 6,000 hours than the 4,000 hours originally anticipated. Trans-Canada Lines now have routes totalling 3,644 miles, covering 9,044 scheduled miles daily with eight round trips.

The report forecasts increased services to take care of the growing traffic. Plans have been made for the establishment, in the next few weeks, of a second trans-continental trip. During the summer, Toronto and Windsor, Ontario, will be linked by a double service, with a stop at London, Ont., and a third trip between Montreal, Ottawa and Toronto will be operated. The company's application for the right to fly between Toronto and New York and Toronto and Buffalo is now being considered by the U.S.A. Civil Aeronautics Authority at Washington. Canadian licences have already been granted.

THE SEVENTY-FIFTH REPORT

Royal Aeronautical Society's Three-Quarters of a Century

SATURDAY of last week was something of a milestone in the life of the Royal Aeronautical Society in that on that day the council presented its seventy-fifth annual report. The meeting was held at the offices of the Society, 4, Hamilton Place, London, W.1, and in the absence, due to illness, of the President, Mr. A. H. R. Fedden, the chair was taken by Mr. Griffith Brewer. In the course of his speech Mr. Brewer said that it would be seen from the report of the council that the Society has been pressing forward with that vitally important subject, the education of the aeronautical engineer. Early in the year the University of London agreed to the creation of an aeronautical engineering degree, so putting aeronautical engineering on the same footing as that of other forms of engineering as Civil and Electrical. At the same time, the Council approached the Society of British Aircraft Constructors, and a Committee was formed to draft out a suggested training and syllabus for training aircraft apprentices which would be on national grounds. This report is now under discussion with the Engineering and Allied Employers' National Federation, and he had every confidence that shortly there will be a scheme in existence so that every boy in the country who enters aviation will have the opportunity, where he shows ability, to rise to the highest posts in the Industry by means of a technical and practical ladder which has been built for him by the Society of British Aircraft Constructors and the Royal Aeronautical Society.

Growing Membership

He called attention to the fact that the membership of the Society was, for the first time in history, approaching the 2,500 mark. The Endowment Fund stood at £51,000 at the end of last year. Most of the donations were given over a seven-year period, so that the full effect did not show immediately, but at the end of that time it should have reached a sum of at least £125,000. The balance sheet showed a deficit of about £1,000. That was entirely due to the cost of moving into the new offices, and to expenses in connection with the 1940 International Congress, which had had to be postponed on account of the war.

Mr. Griffith Brewer said he would like to emphasise how much the Society owed to its Secretary, Capt. Pritchard, who, although he did not appear to be steering the boat, was sure to be close to the tiller.

From the report of the Council we quote the following. The membership list shows 202 Fellows, 50 Members, 667 Associate Fellows, 187 Associate Members, 298 Associates, 105 Graduates, 126 Companions, 20 Founder Members, 672 Students and 41 Temporary Hon. Members.

The Council expresses its indebtedness to the Air Ministry and to the S.B.A.C. for the fifteenth successive annual donation of £250 each to the funds of the Society.

It is pointed out that immediately on his accession to the presidency of the Society in 1938, Mr. Fedden made the increasing of the funds a major issue. After a few months of intense activity the funds had increased by £70,000, a tribute to his interest in the welfare of the Society.

The rapid increase in the importance of aeronautical engineering, and the very definite specialisation required, beyond a certain point, led the Council to consider very carefully to what extent aeronautical subjects should be included in engineering examinations for those students who intended, ultimately, to become aeronautical engineers.

It is generally known, following representations of the Society, that National Certificates and Diplomas are endorsed by the President of the Society for aircraft engineering, and that for some time questions on aeronautical engineering have been included in the B.Ss. (Eng.) examinations at the University of London.

At the beginning of 1939 the Council were of the opinion that the time had now arrived when aeronautical engineering should be put on the same footing as civil, mechanical and electrical engineering, as far as regards a degree course.

A memorandum stating the reasons for the Council's opinion was addressed to the Academic Registrar at the University of London on the subject of the training of aeronautical engineers and a reply was received that the Board of the Faculty of Engineering would be glad to meet representatives of the Society to discuss the matter fully.

The following were appointed to represent the Society:—

Mr. A. H. R. Fedden, President; Mr. S. Camm, Member of Council; Dr. N. A. V. Piercy, Member of Council; Mr. H. E. Wimperis Immediate Past-President; Capt. J. Laurence Pritchard, Secretary.

At the meeting with the Board, Mr. Fedden, the President, and Mr. Wimperis, the Immediate Past-President, briefly explained a number of points in the Society's memorandum, and the urgent need for further facilities for aeronautical engineering training, and answered points raised by the Board of the Faculty of Engineering.

At the end of July, 1939, the following letter was received by the Society from the Academic Registrar:—

"With reference to your letter of December 28th, 1938, I now write to inform you that the Senate at their meeting yesterday resolved that aeronautics be included in the Course for Part II of the Bachelor of Science (Eng.) Examination in the same way as civil, mechanical and electrical engineering are already included in that course.

"The question of drawing up regulations is being submitted to the appropriate board of studies."

Cause for Satisfaction

The regulations referred to in this letter will be published in the Journal in due course. The President and Council, naturally, view with satisfaction the result of their efforts, a result due not only to the important position now reached by aeronautical engineering, but due also to the very sympathetic hearing given to the representatives of the Society by the Board of the Faculty of Engineering at the University of London, under the Chairmanship of Professor G. T. R. Hill.

The President and Council have had every aspect of the training of aeronautical engineering under close review during the past twelve months. In many directions they are pressing for a fuller recognition of the importance of training men (and for providing full facilities for training) now for the future increase in developments which are clearly coming.

The following have been nominated to fill the ten vacancies on the Council for 1940:—

Professor L. Bairstow; Mr. R. Blackburn; Mr. Griffith Brewer; Mr. S. Camm; Dr. Roxbee Cox; Mr. W. C. Devereux; Mr. E. C. Gordon England; Captain A. G. Lamplugh; Mr. D. R. Pye; Mr. Hessell Tiltman.

N.A.C.A. Co-ordinator of Research

THE newly-created post of Co-ordinator of Research for the National Advisory Committee for Aeronautics in U.S.A. has been accepted by Paul Johnston, formerly editor of our contemporary *Aviation*. Mr. Johnston has been with *Aviation* since 1931 and its editor since 1936, and is widely conversant with aviation and its problems. His work will be to provide the liaison between the N.A.C.A., the industry, and other research organisatons, and so ensure that the effort put into research is devoted to the most urgent problems.

Lockheed Apprenticeship Scheme

STAFF relations at the Lockheed plant in California are given a lot of attention and the education division, with the co-operation of the State Department of Education, has established trade extension classes covering a very wide range of subjects. In all there are 53 classes dealing with subjects as widely divergent as elementary sheet metal work and fairly advanced engineering. About 2,000 students are in attendance and an apprenticeship agreement has been signed with local labour organisations which provides for four years' training.

HERE and THERE

Television from the Air

TELEVISION apparatus weighing 700lb. and so light enough to be carried in an aeroplane, has been used in the air over New York to transmit pictures a distance of 130 miles. Military experts are said to be considering the equipping of reconnaissance aircraft with such apparatus.

Long-distance Passenger

OSCAR A. MORGAN, who has been keeping a passenger log for eight years, has flown more than 336,894 miles on the air transport lines of the United States. In the last three years he has made 170 trips on Eastern Air Lines, a total distance of 66,373 miles. In the eight years he has been something like 2,000 hours in the air. On March 1, Eastern Air Lines had a record day, carrying a total of 1,069 passengers.

Ploughshare Into Sword

THE U.S. Maritime Commission is calling tenders for the construction of two luxury liners which are capable of conversion into aircraft carriers. The two funnels are placed on the starboard side, and when it is desired to convert the ship, all deck gear is removed and the top deck extended. The "hangar" is made by removing the columns of one of the lower decks, and provision is made for an elevator to be installed. Of 35,000 tons, the ships will be 759 feet long and 98 feet beam. Speed is stated to be 24 knots and they are intended for operation in the Pacific. They will have no armour plate.

American Purchases

IT was reported that the United States War Department had decided to allow the British and French Governments to purchase Curtiss P40 fighters which are capable of something like 400 m.p.h., but this has now been denied by the Assistant Secretary for War, who states that the Allies have been offered a very similar but slightly earlier type, the Curtiss Hawk 81 A. The incorporation of secret equipment on the P40, which the United States is at present unwilling to export, is said to be the reason for this change.

The Anglo-French Purchasing Commission is believed to be seeking to buy 3,000 fighters of Curtiss and Bell Airacobra types, but the latter type, which was described in our issue of February 22, has not yet been released for export.

These Modern Times

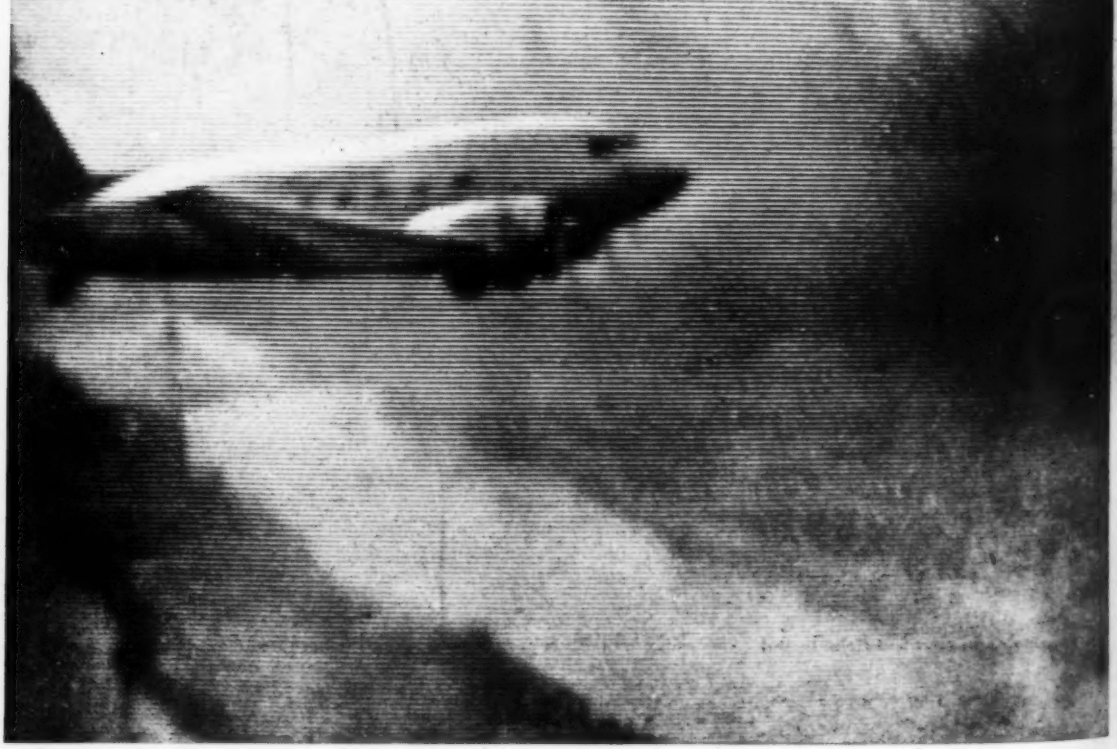
IT is reported from America that a New Orleans paper printed the picture of a pelican which had been forced down by ice formation on its wings during the last winter's very cold weather. Apparently Nature does not yet fit de-icers, not even to a 1940 model American pelican.

Clippers Omit Bermuda

BERMUDA has now been omitted as a stop on the Pan American transatlantic service and the flying boats will go direct from New York to the Azores. The company will maintain a separate service to Bermuda. There is sufficient reason for the omission of Bermuda in the improving weather conditions.

Miles Master Handbook

PHILLIPS & POWIS have issued a very useful book of Pilots' Notes on the Miles Master. Commencing with a complete technical description of the aeroplane, including carefully labelled illustrations of the instrument board and controls, it gives detailed procedures for take-off, climb, level flight and all other flying operations. Engine limitations on boost, r.p.m. and temperatures are carefully set out and no excuse remains for any pilot abusing his engine. Instructions for the usual forms of aerobatics are given in the last section. The book is attractively produced and designed for carrying in the pocket and use on the aerodrome.



TELEVISION IN THE AIR. An American airliner photographed from a television screen at the same time that it was being seen by ground viewers and by passengers on board. The horizontal lines from the scanning device should be noted.

Director of Public Relations

THE Air Ministry announces that Air Commodore H. Peake has been appointed Director of Public Relations in the Air Ministry.

Wright Duplex Cyclone

A SMALL notice in the Civil Aeronautics Journal announces the award of a Type Certificate to the new Wright engine: "Wright, Duplex Cyclone GR-3350-A2, 18 cylinders, radial air cooled, 1,700 horse power at 2,300 revolutions per minute at 6,500-foot pressure altitude."

Helsinki Service Resumed

DURING the war in Finland air transport was operated regularly by the Swedish A.B.A. and the Finnish Aero O/Y from Stockholm to Abo and from Stockholm to Vasa via Sundsvall. As from March 18 the Abo line will be extended to Helsinki, as before the war. Departure is from Stockholm at 9.00 daily, arriving at Helsinki 12.25 Finnish time.

The Royal Aero Club

THE Annual General Meeting of the Royal Aero Club was held on the Club premises on Wednesday, March 27th. The Chairman, Sir Lindsay Everard, in the course of his remarks, referred to the work which the Club was doing in assisting the Air Ministry with information relating to missing and prisoners of war of the air services. The close liaison between the National Aero Club of all countries placed the Royal Aero Club in a particularly favourable position to obtain this information very quickly. The work of the Royal Aero Club in this connection was much appreciated by the Air Ministry.

It was decided not to hold a Committee election this year, and the Committee which was in office at the outbreak of war should continue until the next Annual General Meeting. The Duke of Atholl was elected President and the following Vice-Presidents were elected: The Duke of Sutherland; The Marquis of Londonderry; Viscount Wakefield of Hythe; Lord Gorell; Lt.-Col. J. T. C. Moore-Brabazon and Lt.-Col. M. O. Forman.

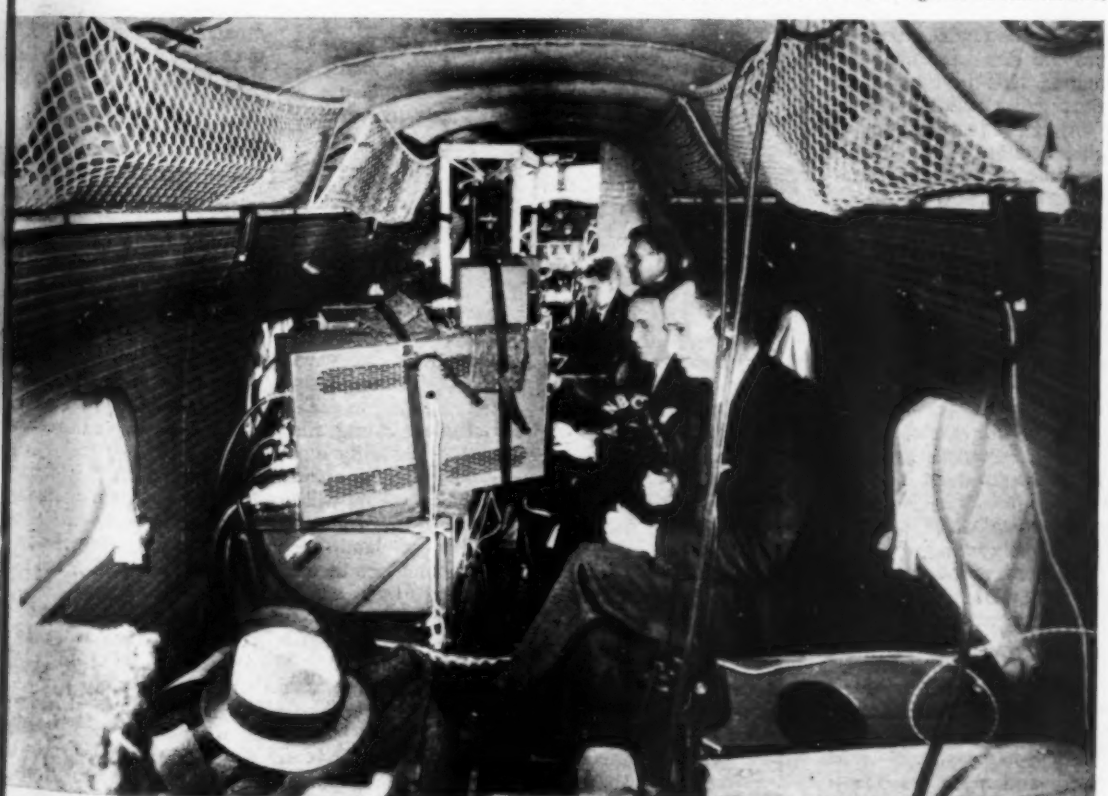
HOLLAND AND BELGIUM CARRY ON. Three pilots, Capts. Pacco and Bloom, of Belgium, discuss affairs with Capt. Kooper, of Holland, "Somewhere in England."

Wages of Air Hostesses

AIR hostesses employed by United Air Lines in U.S.A. have lately been given a new wage scale. They will be paid between $110 and $145 per month, that is between £5 and £6 10s. per week.

Instrument-Landing in U.S.A.

THE Civil Aeronautics Authority announce that it is ready to proceed with the installation of ten instrument-landing systems at important airports in the United States. The type to be installed will be substantially the same as that developed at the Authority's experimental station at Indianapolis. It is recognised that finality has not been reached on the question of the most efficient system, but the Authority desires that air transport pilots shall have the use of one good system in the very near future instead of delaying the work of installation while research is being carried still further.



THE EQUIPMENT USED. The latest lightweight television transmitter installed in an aeroplane. It operates on a wavelength of 104 centimeters. Similar work has been done in this country, but has been kept secret.

RATING of CIVIL AERODROMES

New System Suggested for Replacement of Classification System : The Rating of Aeroplanes for Landing and Take-off

By ERIC PYKE, M.Vic.Inst.E., A.F.R.Ae.S., A.M.I.E.Aust.

NO matter how desirable it may be to have all landing grounds of sufficient size to permit their use, even under the most unfavourable conditions, by aircraft having the longest landing or take-off runs, there will always be cases in which the limitations of terrain or of finance will compel the establishment of grounds smaller than the maximum desired. Also, it seems rather unnecessary to make available a huge ground in a locality which is not visited by aircraft requiring long runs. All of which shows that landing grounds will always be of different standards, and while this is so it will be necessary to have a system of describing them.

It is for the safety and convenience of pilots flying aeroplanes and for the use of aviation administrative authorities who issue licences for landing grounds that such a descriptive system is necessary. A pilot must be informed by the description exactly what sort of landing ground he is coming to, and he must also know whether his aeroplane can be landed there and, perhaps what is more important, whether it can be taken off again. Any landing ground description or classification which does not provide him with this information fails in the primary purpose for which it exists.

As an alternative to the classification of landing grounds into a few arbitrary types, the following "rating method" is put forward:—

Allot to each aeroplane a "rating" which shall be the greater of the lengths it requires for either take-off or landing.

Assess for each landing strip a figure which shall be known as the "rating" for landing and take-off purposes. The rating shall be the run available for landing or take-off (in the same unit of length), suitably corrected to allow for slope, condition of surface, altitude of ground, obstructions at approaches, and (perhaps) local mean temperature.

Then it follows that an aeroplane can use any landing strip which has a rating equal to or greater than the aeroplane's rating.

The unit of length to be adopted is immaterial—it may be feet, metres, yards or even inches—but for convenience metres would be best.

The method of "aerodrome rating" set forth in this article by an Australian correspondent who has been engaged on civil aerodrome work for many years is suggested as an alternative to the classification of aerodromes into a small number of arbitrary classes. The landing and take-off runs of aircraft do not depend on whether the aeroplane is a "light single-engined," a "light twin-engined," or a "heavy twin-engined" type, but on wing and power loading and flaps and brakes, and are a matter for determination by flight test. And to use merely a small number of widely different classes in a classification system does not make for simplicity but for confusion, as each class must of necessity include aerodromes whose characteristics vary considerably. The "rating method" has much to recommend it.

Rating the Aeroplane

Dealing first with the rating of the aeroplane. It is almost certain that the take-off distance would be greater than the landing run if it were decided to adopt the arbitrary safety standard which is now being accepted by more and more aviation people all over the world as being the minimum necessary—that the take-off distance shall be the distance required in which to go from rest up to flying speed, and then, with brakes on, back to rest again in a straight line. (Such a length allows for engine failure to occur just at the instant of leaving the ground, and gives the pilot sufficient length in which to come to rest again without damage.) This length would be determined by test, and would be corrected to sea level and standard atmospheric conditions, and would be related to gross loaded weight. Other tests would be made for reduced loaded weights, and the rating could be placarded on the dashboard of the aeroplane, thus:—

For landing and take-off purposes, the rating of the aeroplane is:—

Gross Loaded Weight	*Rating*
20,000 *lb.*	*R* 550
19,000 *lb.*	*R* 520
18,000 *lb.*	*R* 490

A letter in front of the rating figure is suggested with no unit stated after the figure, as this is unnecessary although it is thought desirable that the rating figure should be in metres. But the only fact which the pilot has to remember is that the aeroplane can use any landing strip which has a rating greater than its own. "R" is considered suitable, as it is the initial letter of both "run" and "rating."

The rating of the landing strip has to be partly calculated, partly assessed. As has been stated, it depends on slope, condition of surface, altitude, approaches and temperature. An aeroplane taking off up a slope needs a greater run than when taking off on the level. Consequently, 750 yards with a slight slope may only be the equivalent of 600 yards on the level, so slope has the effect of reducing rating. (Actually there should be a different rating in each direction, but it is safer to have only the one rating, the lesser of the two, as this eliminates the possibility of confusion.)

A bad surface also reduces rating, as it is obvious that an aeroplane will need a shorter length of concrete runway than of rough grassland for take-off. (If it happens that landing run governs the rating of a particular machine, then the reverse is the case, and this might have to be considered.)

Altitude, because of the reduction of density, increases both landing and take-off runs, so it also has the effect of reducing the rating of the landing strip. This effect would probably be amenable to calculation.

The reduction of available run because of obstructions such as trees and chimneys in the approaches is readily calculable simply by fixing certain angles of approach based upon gliding or climbing angles; while the last factor, temperature, may perhaps be left out altogether. The strictly accurate way of dealing with temperature is to give the landing strip a rating corre-

sponding to a certain arbitrary temperature, say, 15 deg. C., and to then make all adjustments to the rating of the aeroplane according to the prevailing temperature at the time of landing or taking off. This could be arranged, and the alteration of run for each 10 deg. difference from the standard 15 deg. placarded on the instrument board. Such an alteration of run will be small, and it is one more correction for the pilot to make. Also, it is most unlikely to be of such magnitude that a certain aeroplane could land at an aerodrome on a cold day and not on a hot. The better way to deal with it is to rate the landing strip with some regard to the temperatures, mean and maximum, usually encountered at the locality, and so eliminate all necessity for adjustment of the aircraft rating. After all, the margin of safety on the run length is going to be much greater than some slight adjustment due to a hot day. Change of barometric pressure also affects air density, but this effect is so slight that it can be neglected.

It may be thought desirable to have some margin of safety in addition to the actual run from rest to rest, say, perhaps 50 yards, and this would have to be subtracted from the actual measurement of the landing strip to obtain the rating. Wind, too, affects run very much but cannot be taken into account. Its effect is felt in the classification system in a similar way—a strong wind may change a Class B aerodrome into a Class A by the virtual lengthening of its runway.

Ratings of landing strips could be made to differ by 50 or 100 metres. Though the system is capable of infinitely small gradations, nothing smaller than 50 or 100 metre steps would be necessary. The aeroplane's rating should be entered on the instrument board placard to the nearest 10 metres.

It will be noticed that throughout this article the words "landing strip" have been used. An aerodrome is just an arrangement of landing strips and that is one of the reasons that aerodrome "classification" has been such an intractable problem in the past. An aerodrome might have a very long runway in one direction and be very inadequate in all others—what shall it be classified as? The best example of this is the typical New Guinea aerodrome which is only a very narrow landing strip in between mountains. Most New Guinea aerodromes are impossible to classify—but they are in constant use as aerodromes and cannot be ignored as such.

Advantages

The advantages of the rating system may be summarised as follows:—

1. It is capable of infinite gradation and variation.

Landing strips can be rated as closely as is required, to 10 metres if need be, but no necessity can be seen for this. Probably steps of 100 metres would be close enough. As an aerodrome is extended, its rating can be quickly and easily increased. Perhaps it may be extended in the direction of one runway only, in which case only that runway has its rating altered. Perhaps an earth runway is concrete-paved, so increasing its effectiveness without increasing its length. Its rating, too, would be increased, but under the classification system such an aerodrome would still remain in the same class despite its improvement. During periods of bad weather some parts of landing grounds must be flagged off on account of excessive mud. In such a case the rating is temporarily reduced and a Notice to Airmen to that effect circulated.

2. It is capable of infinite extension.

In years gone by there have been systems of classification set up, designated perhaps Classes A, B, C. Class C has been the smallest aerodrome that could be called an aerodrome, while Class A was intended to include only those aerodromes which could take anything that had ever been designed and flown—or would ever be designed and flown, it was usually hoped. But it has not worked out like that, and aircraft have required bigger and bigger landing grounds. We do not know whether they have reached their limit yet and it is desirable to have a system of description which is capable of infinite extension, so avoiding what looks like an afterthought, establishing a Class A1, and perhaps a few years later, another Class A2.

Each Runway Rated

3. It allows the reduction of weight necessary for a take-off on a limited run to be determined with ease and complete accuracy.

If a certain class of aerodrome, say, Class "A," calls for 1,000 yards in one direction and 600 yards in all other directions, an aeroplane requiring 800 yards at full load can use it fully loaded only when the wind is in the right direction. If the wind is in another direction the pilot has no ready means of determining at what reduced load he can take-off. But if the aerodrome was rated along each of its several landing strips and the aeroplane placarded with ratings corresponding to various loadings, the pilot has all the information which he requires and he does not have to take any risk in making his decision about a take-off.

4. It rates each runway of an aerodrome.

Consequently no doubt can exist in any pilot's mind about the capabilities of any aerodrome along any of its runways as these would be shown on the sketch map of the aerodrome. Simply to know that an aerodrome is Class 2 or Class B does not present a very graphic picture to the mind's eye.

5. It informs a pilot with certainty whether he can operate a particular aeroplane from an aerodrome which he has never seen.

He merely compares the rating of the aircraft with the rating of the aerodrome, a job taking about one minute. This may prove very useful when a type other than the usual is suddenly put on to an air route. Suppose Lockheed Electras are operating on one route and, owing to a crash, the company charters a Lockheed 14 for an emergency life-saving flight. By the rating system it is immediately known whether the new machine can use the aerodromes and the time which would be used in referring to the aerodrome authority to find out can be saved, resulting perhaps in the saving of life.

Astronomers Use Aeroplanes

MEMBERS of the Hayden Planetarium-Longines Eclipse Expedition will use an Eastern Airlines Douglas DC 3 to view and take motion pictures of the solar eclipse in April. By so doing they will eliminate any chance of clouds or other weather conditions spoiling the observations.

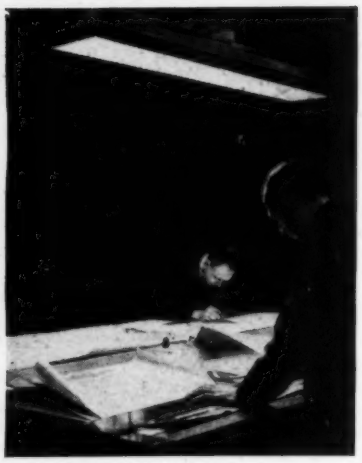
Fuel Injection

THE four-cylinder American Continental aero engine is now being offered with fuel injection instead of a carburettor. The makers claim that this "delivers more power, saves on fuel, gives smooth operation and reduces fire hazard" as well as overcoming carburettor icing troubles. It certainly has the last-named advantage, but whether the manufacturers can substantiate all their other claims seems doubtful. The A-65, A-75 and A-80 models are those which have the new feature fitted.

Why Temporary?

THE Civil Aeronautics Authority announced the temporary suspension of the certificate of an aircraft engine mechanic for "certifying as airworthy an aircraft on which the rib stitching was broken, the fuel lines leaked, five ribs were damaged, and five cylinder heads of the engine were cracked"—as well as other violations of the Civil Air Regulations!

THE INDUSTRY



The new G.E.C. fluorescent mercury vapour lamp.

New G.E.C. Lamp

A NUMBER of aircraft engineers recently had the opportunity of examining and testing a new lamp which the General Electric Co., Ltd., is marketing.

Instead of having the pear shape of the tungsten filament lamp, this new lamp takes the form of a long tube; actually it is five feet long. It is filled with mercury vapour and the inside of the glass lined with fluorescent powders. Such a combination conduces to light being spread over a large area without the slightest suggestion of glare. Moreover the lamp provides a light very closely akin to natural daylight.

Such illumination, well diffused and shadowless, and with a similitude to daylight, will facilitate numberless processes to which aircraft engineers have to apply themselves. Particularly is this the case where fine assembly work and instrument adjustments are concerned.

Another important advantage is the economic factor. This new lamp is rated at 80 watts—it is available for use on A.C. mains only—but it gives as much light as a 200 tungsten filament lamp. This means more light without increased current cost or the same quantity of light (of a better quality) at a third of the operating cost.

Special fittings have been designed for this lamp and these fittings possess reflective properties and contours which ensure the maximum distribution of light either for local illumination or for large areas.

Vickers' Meeting

AT the annual general meeting, held in London yesterday, the chairman, Mr. A. A. Jamieson, reviewed the activities of the various operating companies constituting the Vickers group.

When referring to Vickers-Armstrongs, Limited, he said, among other things:

"Great extensions have been and are being made to the Company's manufacturing facilities, but in spite of these Vickers-Armstrongs could not have attained the measure of success in output which they have achieved had they not adopted the policy of sub-contracting on a large scale. Complete components of such products as gun mountings and aeroplanes have been sub-contracted, and I should like to take this opportunity of thanking the hundreds of firms who are acting as sub-contractors to us for the excellent work they are carrying out. There have been criticisms of sub-contracting, but I can assure you that, although initial difficulties were encountered, our own experience has been satisfactory.

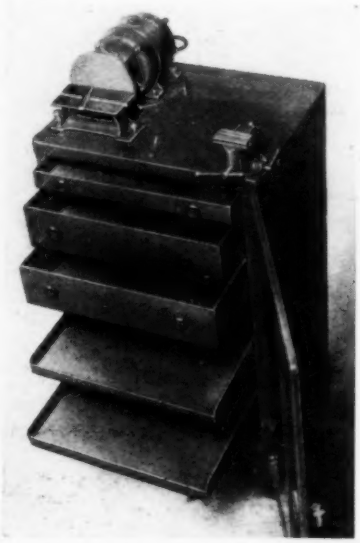
"There are many sides of this Company's activities of which, if I were free to do so, I should like to tell you and of which you would hear with pride, but there are two matters to which I can refer. H.M. Ships *Ajax*, *Cossack* and *Ursula*, which have taken part in outstanding naval engagements, were built in the shipyards of this Company, and I believe as finely built as they were finely handled. Two types of aeroplanes—the Wellingtons and Spitfires—were designed and produced by our Aviation Section and the stockholders may well be proud of the high reputation of these machines."

Later in his speech, when dealing with the group as a whole, Mr. Jamieson spoke with pride of the effort which was being made by the concern to keep pace with the required production. His actual words were: "The Group is working at full pressure with one thought uppermost in the minds of each individual, namely, to do his or her utmost to win the war. The whole organisation is working under great strain, but I see no signs whatever of the strain being too great or the burden too heavy."

A final dividend of six per cent., less income tax, was declared, making ten per cent. for the year, and a sum of £480,187 carried forward to the next account.

Phoenix Compacta

A NEW item of workshop equipment has been added to the extensive range already marketed by E. H. Jones (Machine Tools), Ltd., by the introduction of the Phœnix Compacta. This consists essentially of a tool cabinet the top of which forms a work bench and has already fitted a swivelling motor, toolrest and vice.



The Compacta is a tool chest and work bench combined.

The Compacta has been designed for use in either large or small shops, and as an accessory in the repair hangar it should be invaluable. The swivelling motor enables many different operations to be carried out efficiently, such as burring, polishing, drill grinding, file finishing, French polishing and linishing.

Manufactured from sheet steel throughout, crevices and corners have been avoided so that dirt does not collect, and the door which closes over the drawers is provided with a Yale lock. The dimensions are:—Height 36in., width 19½in., depth 15in. The motor is ½ horse power.

Lincoln Electrode

IN addition to their standard Manganweld electrode, Lincoln Electric Company, Limited, Welwyn Garden City, Herts, have now produced a high manganese electrode designed for building up worn manganese steel parts of the 11 to 14 per cent. manganese type. The structure of the deposit and its wear-resisting properties are claimed to be equal to those of heat-treated cast manganese steel.

The new electrode, called "Manganweld B," possesses alloys in addition to its high manganese, so as to make the weld air-toughening, i.e., remain in the austenitic state, and retain carbides in solution, even on air cooling. The hardness of the deposited weld metal is 160-180 Brinell and will rapidly cold work to a hardness of 444 to 534 Brinell.

Surfaces to be built up should first be ground free of all rust and spongy or defective material and the metal deposited in pads ½in. to 1in. wide, preferably no more than 3in. in length, using a semi-circular weaving motion.

This new electrode is available in two sizes, $\frac{3}{16}$in and ¼in.

NEW COMPANIES

BROXBOURNE AIRCRAFT EQUIPMENT COMPANY, LTD.—Private company. Registered March 26. Capital £1,000 in £1 shares. Objects: To carry on the business of aircraft constructors and equipment manufacturers, etc. The directors are: Sydney Craft, 8, Ashtead Road, N.16, aeronautical electrical engineer; Major Thomas J. Graham, 16, Hillcrest Road, Purley. Registered office: 124, Bishopsgate, E.C.

AERONAUTICAL PATENT SPECIFICATIONS

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1938.

12378. WYNNE, J. N., and NORTH BRITISH RUBBER CO., LTD. Apparatus for preventing ice formation on or de-icing the exposed surfaces of aircraft (518,463).

15065. GAZDA, A. Projectiles (518,545).

1810. BRISTOL AEROPLANE CO., LTD., and FREE, L. G. Construction of aeroplane wings. (518,513).

18425. STANDARD TELEPHONES AND CABLES, LTD. Apparatus for determining the speed, course, position, or distance moved through by a moving vehicle on land or water or in water or air (518,546).

20352. YOUNG, F. S. Nose and tail fuzing box for use in connection with aircraft bomb-release gear and the like (518,514).

24880. AIR-EQUIPMENT. Retractable landing-gear for aircraft (518,414).

24926. VEREINIGTE DEUTSCHE METALLWERKE AKT.-GES., FAUDI, F. (trading as Faudi, F. (Firm of). and TOENNIS, E. Aircraft landing-gear (518,418).

25153. ELEKTRON-CO. GES. Control valve arrangements with automatic return of longitudinally-movable control members for hydraulic installations for moving structural parts of aircraft (518,550).

25325. TENNANT, W. J. (AVIATION PATENTS, INC.). Aeronautical propeller blades, and methods of locating the pitch axis of variable-pitch propeller blades (518,606).